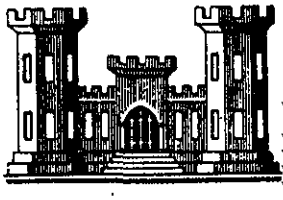
MOUSAM RIVER BASIN
SANFORD, MAINE

RIVER STREET DAM
ME-00184

PHASE I INSPECTION REPORT
NATIONAL DAM INSPECTION PROGRAM



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DEPARTMENT OF THE ARMY
NEW ENGLAND DIVISION, CORPS OF ENGINEERS
WALTHAM, MASS. 02154

OCTOBER 1978

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

The dam is a stone wall dam, gravity type, with a self-loading timber deck spillway. It is 410 ft. long with a height of 17 ft. The dam is assessed to be in poor condition. It is small in size with a hazard potential of significant. Major repairs and rehabilitive construction appear necessary to assure the long-term safety of the dam.

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DEPARTMENT OF THE ARMY
NEW ENGLAND DIVISION, CORPS OF ENGINEERS
424 TRAPELO ROAD
WALTHAM, MASSACHUSETTS 02154

REPLY TO
ATTENTION OF:

NEDED

JAN 08 1979

Honorable Joseph E. Brennan
Governor of the State of Maine
State Capitol
Augusta, Maine 04330

Dear Governor Brennan:

I am forwarding to you a copy of the River Street Dam Phase I Inspection Report, which was prepared under the National Program for Inspection of Non-Federal Dams. This report is presented for your use and is based upon a visual inspection, a review of the past performance and a brief hydrological study of the dam. A brief assessment is included at the beginning of the report. I have approved the report and support the findings and recommendations described in Section 7 and ask that you keep me informed of the actions taken to implement them. This follow-up action is a vitally important part of this program.

A copy of this report has been forwarded to the Department of Agriculture and the Department of Transportation, cooperating agencies for the State of Maine. In addition, a copy of the report has also been furnished the owner, the Town of Sanford, Town Hall, Sanford, Maine 04073.

Copies of this report will be made available to the public, upon request, by this office under the Freedom of Information Act. In the case of this report the release date will be thirty days from the date of this letter.

I wish to take this opportunity to thank you and the Department of Agriculture and the Department of Transportation for your cooperation in carrying out this program.

Sincerely yours,

JOHN P. CHANDLER
Colonel, Corps of Engineers
Division Engineer

Incl
As stated

RIVER STREET DAM

ME-00184

MOUSAM RIVER BASIN

SANFORD, MAINE

PHASE I INSPECTION REPORT
NATIONAL DAM INSPECTION PROGRAM

NATIONAL DAM INSPECTION PROGRAM

PHASE I INSPECTION REPORT

ME-00184

RIVER STREET DAM

SANFORD
YORK COUNTY, MAINE

MOUSAM RIVER

September 7, 1978

BRIEF ASSESSMENT

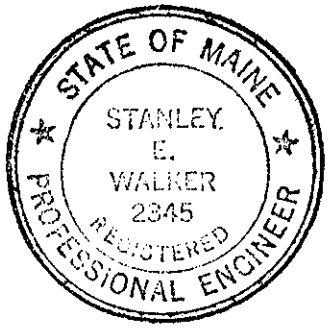
The River Street Dam is a stone wall dam, gravity type, with a self-loading timber deck spillway. The dam has earth embankment and stone wall wing sections. It has an overall length of about 410 feet and a height of 17 feet.

Based on the visual inspection and its performance history, the River Street Dam is assessed to be in poor condition. The deteriorated condition of the spillway deck, lack of a controlled outlet works, and the seepage occuring in and beneath the easterly abutment are of serious concern relative to both the short and long-term safety of the dam.

Based on its small size and significant hazard classification, in accordance with the Corps of Engineer's guidelines, the test flood falls between the 100-year flood and 1/2 times the Probable Maximum Flood (PMF). The spillway will pass about 68 percent of the test flood (1/2 PMF). The spillway will pass in excess of the 100-year flood.

Major repairs and rehabilitative construction appear necessary to assure the long-term safety of the dam. Within 12 months, the owner should have a qualified engineer evaluate the following items: 1.) removal of the timber spillway, 2.) the need for an outlet control structure, and 3.) the curtailing of seepage and leakage through and beneath the

east embankment. Implementation of the results of this evaluation should also occur in this 12 month period. The remedial maintenance items outlined in Section 7.3 should also be completed within 12 months, in particular, repairs to the timber spillway. A plan for around-the-clock surveillance during periods of anticipated high runoff and for a formal warning system should also be developed.



EDWARD C. JORDAN CO., INC.

Stanley E. Walker, P.E.
Project Manager

This Phase I Inspection Report on River Street Dam has been reviewed by the undersigned Review Board members. In our opinion, the reported findings, conclusions, and recommendations are consistent with the Recommended Guidelines for Safety Inspection of Dams, and with good engineering judgment and practice, and is hereby submitted for approval.

Richard F. Doherty

RICHARD F. DOHERTY, MEMBER
Water Control Branch
Engineering Division

Joseph A. McElroy

JOSEPH A. MCELROY, MEMBER
Foundation & Materials Branch
Engineering Division

Carney M. Terzian

CARNEY M. TERZIAN, CHAIRMAN
Chief, Structural Section
Design Branch
Engineering Division

APPROVAL RECOMMENDED:

Joe B. Fryar

JOE B. FRYAR
Chief, Engineering Division

PREFACE

This report is prepared under guidance contained in the Recommended Guidelines for Safety Inspection of Dams, for Phase I investigations. Copies of these guidelines may be obtained from the Office of Chief of Engineers, Washington, D.C. 20314. The purpose of a Phase I investigation is to identify expeditiously those dams which may pose hazards to human life or property. The assessment of the general condition of the dam is based upon available data and visual inspections. Detailed investigation, and analyses involving topographic mapping, subsurface investigations, testing, and detailed computational evaluations are beyond the scope of a Phase I investigation; however, the investigation is intended to identify any need for such studies.

In reviewing this report, it should be realized that the reported condition of the dam is based on observations of field conditions at the time of inspection along with data available to the inspection team. In cases where the reservoir was lowered or drained prior to inspection, such action, while improving the stability and safety of the dam, removes the normal load on the structure and may obscure certain conditions which might otherwise be detectable if inspected under the normal operating environment of the structure.

It is important to note that the condition of a dam depends on numerous and constantly changing internal and external conditions, and is evolutionary in nature. It would be incorrect to assume that the present condition of the dam will continue to represent the condition of the dam at some point in the future. Only through continued care and inspection can there be any chance that unsafe conditions be detected.

Phase I inspections are not intended to provide detailed hydrologic and hydraulic analyses. In accordance with the established guidelines, the spillway test flood is based on the estimated "Probable Maximum Flood" for the region (greatest reasonably possible storm runoff), or fractions thereof. Because of the magnitude and rarity of such a storm event, a finding that a spillway will not pass the test flood should not be interpreted as necessarily posing a highly inadequate condition. The test flood provides a measure of relative spillway capacity and serves as an aide in determining the need for more detailed hydrologic and hydraulic studies, considering the size of the dam, its general condition and the downstream damage potential.

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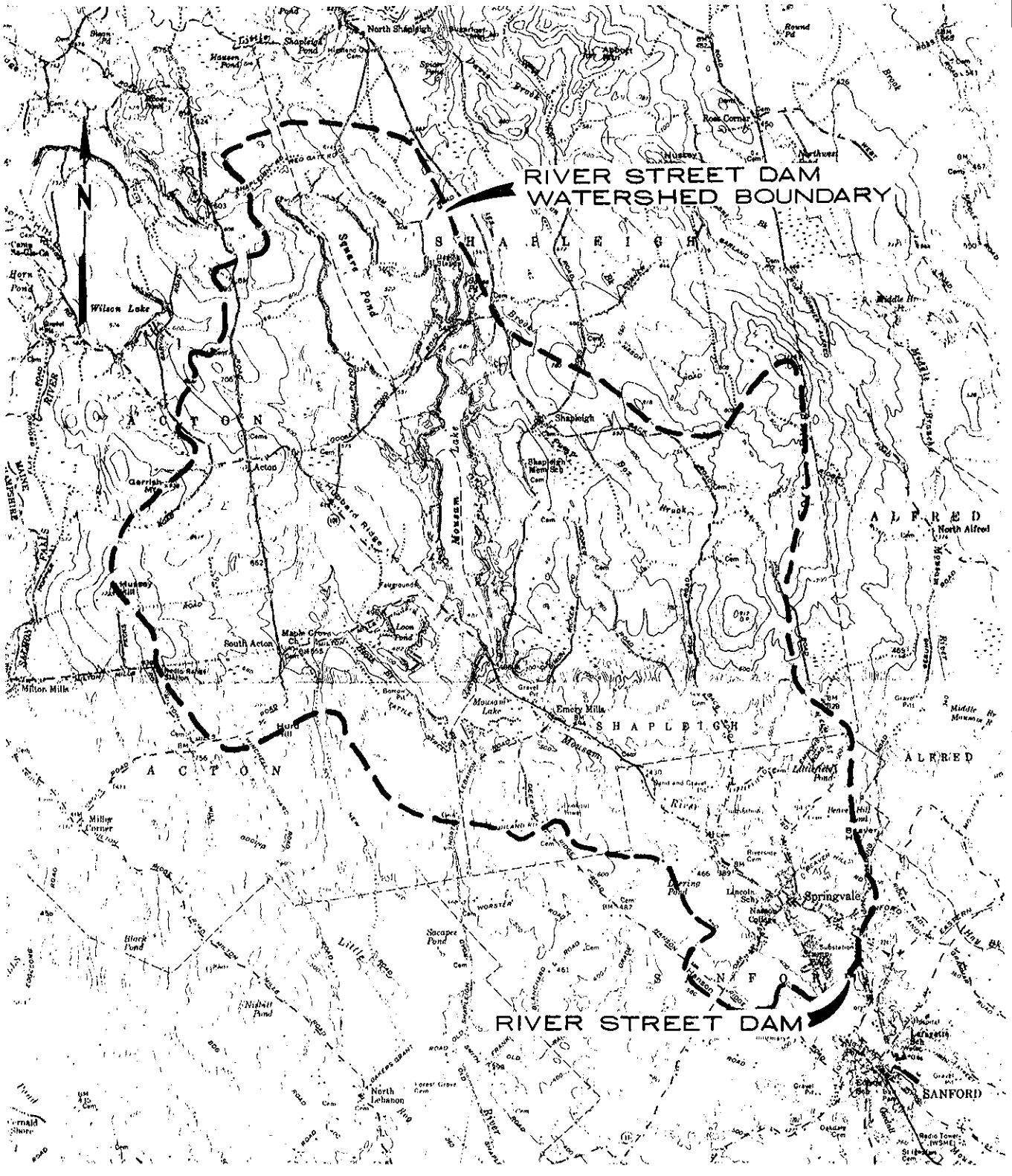


EDWARD C. JORDAN CO., INC.
PORTLAND, MAINE

U.S. ARMY ENGINEER DIV. NEW ENGLAND
CORPS OF ENGINEERS
WALTHAM, MASS.

NATIONAL PROGRAM OF INSPECTION OF NON-FED. DAMS

RIVER STREET DAM
LOCATION MAP

MOUSAM RIVER — MAINE

SCALE

DATE OCTOBER 1978

PHASE I INSPECTION REPORT

RIVER STREET DAM

SECTION 1

PROJECT INFORMATION

1.1 GENERAL

a. Authority. Public Law 92-367, August 8, 1972, authorized the Secretary of the Army, through the Corps of Engineers, to initiate a National Program of Dam Inspection throughout the United States. The New England Division of the Corps of Engineers has been assigned the responsibility of supervising the inspection of dams within the New England Region. Edward C. Jordan Co., Inc. has been retained by the New England Division to inspect and report on selected dams in the State of Maine. Authorization and notice to proceed were issued to Edward C. Jordan Co., Inc. under a letter of June 20, 1978 from Ralph T. Garver, Colonel, Corps of Engineers. Contract No. DACW33-78-C-0349 has been assigned by the Corps of Engineers for this work.

b. Purpose

(1) To perform technical inspection and evaluation of non-Federal dams to identify conditions which threaten the public safety and thus permit correction in a timely manner by non-Federal interests.

(2) To encourage and prepare the states to initiate quickly effective dam safety programs for non-Federal dams.

(3) To update, verify and complete the National Inventory of Dams.

1.2 DESCRIPTION OF PROJECT

a. Location. The River Street Dam is located at the foot of Stump Pond between the communities of Springvale and Sanford, in the town of Sanford. It is located on the Mousam River. N43°27.2', W70°47.0'

b. Description of Dam and Appurtenances. The River Street Dam is a dry laid stone masonry structure with a timber self-loading deck spillway. The dam has a stone and earth embankment easterly wing wall. The masonry and timber section of the dam is approximately 170 feet in length. The easterly wing wall of the dam is approximately 240 feet in length. In the easterly portion of the dam exists an inoperative spillway gate and apparently an inoperative controlled outlet gate.

c. Size Classification. Based on a storage capacity of 58.6 acre-feet the River Street Dam is classified as a small sized dam (greater than 50 acre-feet but less than 1000 acre-feet). This dam has a height of approximately 17 feet.

d. Hazard Classification. In the event of failure of the River Street Dam, there would be damage to industrial establishments downstream of the structure. Thus the River Street Dam has been classified as having a significant hazard potential.

e. Ownership. The River Street Dam is presently owned by the town of Sanford. The dam was originally built and previously owned by the Sanford Light and Power Company.

f. Operator.

Mr. Roy Moses
Town of Sanford
Town Hall
Sanford, Maine
Telephone 207-324-5561

g. Purpose of Dam. Presently the sole purpose of the River Street Dam is recreation.

h. Design and Construction History. The River Street Dam was originally built in 1892. It was raised 4 feet in 1906. No design or construction records were disclosed in this investigation.

i. Normal Operating Procedures. The gates at the River Street Dam are inoperable. The dam is normally operated by allowing water to spill over the crest of the spillway and water levels in the impoundment are controlled by the flow in the Mousam River.

1.3 PERTINENT DATA

a. Drainage Areas. The drainage area above the River Street Dam is approximately 39.3 square miles and lies in portions of Shapleigh, Acton and Sanford. About 8 percent of the entire drainage area is storage at Mousam Lake, Square Pond, Goose Pond, Littlefield Pond, Loon Pond, Stump Pond, and other unnamed impoundments. The watershed has a relatively flat topography with a few hills varying in elevation from about 300 feet to 1300 feet.

b. Discharge at Damsite. There are currently no gate structures at the damsite. The following are pertinent discharges:

(1) Maximum flood at damsite is unknown.

(2) Spillway capacity at top of dam is about 5380 cfs at elevation 306.2.

(3) Spillway capacity (total project discharge), at test flood (1/2 PMF), is about 7860 cfs at elevation 307.3.

(4) Gated spillway capacity is not applicable.

c. Elevation. Survey data collected at River Street Dam was referenced to a temporary bench mark. The following elevations were later referenced to USGS mean sea level datum by assuming that the normal pond elevation is equal to the elevation of the top of the spillway section (301.7 MSL Datum). This elevation is assumed to be correct as given in USGS Water Supply Paper No. 1671.

ITEM	ELEVATION ABOVE MSL
Streambed at Centerline of Dam (U/S)	289.2
Maximum Tailwater	Unknown
Recreation Pool	301.7
Full Flood Control Pool	306.2
Spillway Crest	301.7
Design Discharge	Unknown
Top of Dam	306.2
Test Flood (1/2 PMF) Design Surcharge	307.3

d. Reservoir. The lengths of the maximum flood control pool (elevation 306.2) and the recreational pool were estimated from a USGS map. The lengths are shown below.

ITEM	LENGTHS (feet)
Maximum Flood Control Pool	2750
Recreational Pool	2250

f. Reservoir Surface. The following are estimated surface areas for Stump Pond.

ITEM	SURFACE AREA (acres)
Top of Dam/Maximum Pool	65.5
Test Flood (1/2 PMF) Pool	67.2
Recreational Pool	58.6

g. Dam.

Type - The dam is a stone wall earth embankment dam with a self-loading timber deck. The easterly wing wall is a stone wall embankment section.

Length - The spillway portion of the dam is approximately 170 feet in length. The easterly wing wall of the dam is approximately 240 feet in length.

Height - The timber and gravity stone masonry spillway section is approximately 12 feet high. The east wing wall averages about 8 feet in height and is also a stone masonry section.

Top Width - See cross-sections in Appendix B.

Side Slopes - See cross-sections.

Zoning - See cross-sections.

Impervious Core - Not applicable.

Cut-Off - Not applicable.

Grout Curtain - Not applicable.

Other - Not applicable.

h. Diversion and Regulating Tunnel. Not applicable.

i. Spillway.

Type - The spillway of the dam is a sharp crested weir constructed of a self-loading timber deck. See photographs 1 and 2.

Length of Weir - The spillway is 152 feet in length.

Crest Elevation - The elevation of the crest of this spillway is taken as 301.7 feet (above mean sea level datum).

Gates - There once was a 3.3 foot wide timber gate located in the easterly portion of the spillway. The gate opening is now boarded shut. No operating equipment is present.

Upstream Channel - A clear unobstructed channel with a gravelly bottom with some evidence of siltation. See photograph 5.

Downstream Channel - This channel consists of a rock lined stream restricted by a tree covered rock outcrop on the southwest end of the dam. The main channel has a width of 50-60 feet. See photographs 1 and 3.

j. Regulated Outlet. There appears to be a regulated outlet located in the easterly portion of the dam beneath the gated section of the spillway. Based on the visual observations it appears that the operating mechanisms have been removed from the regulating outlet, but that the gate or closure is in fact over the outlet (see photograph 4).

Invert - The invert elevation is about 289 feet above MSL.

Size - the regulated outlet appears to be at least 4 feet wide by 3 feet in height.

Description - The regulated outlet could not be inspected due to waterlevel in the impoundment and tailwater levels below the dam.

Control Mechanism - There is no control mechanism to the regulating outlet at the dam.

Other - Not applicable.

SECTION 2

ENGINEERING DATA

2.1 DESIGN

This investigation disclosed no available design data.

2.2 CONSTRUCTION

No information was found to be available regarding the construction of the River Street Dam. It was determined that the dam was built in 1892 and raised approximately 4 feet in 1906.

2.3 OPERATION

The gate at the River Street Dam is inoperable. The normal operation of the dam allows water to flow over the crest of the spillway and water level in the impoundment is governed by the flow in the Mousam River.

2.4 EVALUATION

a. Availability. No data is available regarding design or construction of the facilities.

b. Adequacy. The lack of in-depth engineering data did not allow for a definitive review. Therefore, the adequacy of this dam could not be assessed from the standpoint of reviewing design and construction data, but is based primarily on visual inspection, performance history and engineering judgment.

c. Validity. Not applicable.

SECTION 3

VISUAL INSPECTION

3.1 FINDINGS

a. General. The River Street Dam is located in a shallow broad section of the valley. It appears to be founded on soil. The dam shows no signs of serious distress caused by foundation support.

b. Dam.

(1) Structural - the dam is constructed of dry laid masonry with earth embankment fill placed upstream of the masonry faces. See plan, profile and cross-sections in Appendix B. The masonry portion of the dam appears to be in good structural condition. The timber deck and supporting elements of the deck are in poor condition. The dam appears to lack the benefit of routine maintenance. See Appendix A for detailed inspection findings.

Inspection of the River Street Dam resulted in the following major findings:

(a) The stone masonry portions of the dam appear to be true to line and grade and show no horizontal or vertical movement. The masonry appears to be sound and tight.

(b) The timber deck forming the spillway of the dam is in poor condition. Several of the supporting struts are missing from beneath the deck. The deck has sagged in some areas and planking is missing.

(c) Soil fill has been placed on the upstream face of the timber deck increasing the load on this portion of the structure.

(d) The easterly embankment portion of the dam is tree and brush covered. Erosion is occurring in the upstream face of this embankment at the waterline of the impoundment. No slope protection was observed along this upstream face of the embankment.

(e) Substantial seepage is occurring downstream of the easterly abutment of the dam. As much as 50 gpm was observed to be flowing from one concentrated spring. No substantial erosion was noted to be occurring at this spring, however.

(2) Hydraulics - at the time of the visual inspection, the pond level was being controlled by a small flow over the spillway. Missing planks have caused this control elevation to be slightly below the spillway crest.

c. Appurtenant Structures. The spillway gate and the controlled outlet gate, located in the easterly portion of the dam, were both found to be inoperable. No hoisting equipment is available at the dam for operation of these gates.

d. Reservoir Area. The impoundment area in its present state is about 58.6 acres. It is a shallow reservoir approximately 6 feet deep. There are no cottages on this pond at present.

e. Downstream Channel. This channel has a rock lined bed with a restricted flow on the southwest side of the dam due to a tree covered rock outcrop. The main channel has a width of 50 to 60 feet. See photographs 1 and 3.

3.2 EVALUATION

Based on the visual inspection the dam appears to be in poor condition. The timber spillway deck shows signs of serious distress. Substantial seepage is occurring through the easterly abutment and wing wall. The spillway gate and controlled outlet gate are both inoperable. As outlined in Section 7, rehabilitative construction and maintenance are necessary to assure the long-term safety of the structure.

SECTION 4

OPERATING PROCEDURES

4.1 PROCEDURES

The gates at the River Street Dam are inoperable and the water level in the impoundment is governed only by the flow in the Mousam River. Normal operation is to allow the water to flow over the crest of the spillway.

4.2 MAINTENANCE OF DAM

No records of maintenance were found to be available for the River Street Dam. Repairs reportedly have been made to the spillway deck within the past year. Fill was placed immediately upstream of the spillway to form a causeway to facilitate the repair to the spillway.

4.3 MAINTENANCE OF OPERATING FACILITIES

No record of maintenance of the operating facilities of the River Street Dam was available. It was reported and observed during the visual inspection that major repairs have been made in the past to the spillway gate area of the dam, however, details regarding these repairs were not disclosed in this investigation. An engineering report regarding rehabilitation of the River Street Dam is enclosed in Appendix B of this report.

4.4 DESCRIPTION OF ANY WARNING SYSTEM IN EFFECT

None in effect.

4.5 EVALUATION

Based on the visual observations it appears that there is no regular maintenance program in effect for the River Street Dam. Reportedly maintenance is done on an as needed basis. No warning system for either high water or structural distress is in effect at the dam. As outlined in Section 7, substantial rehabilitative construction and maintenance of the facilities is necessary to assure its long-term safety.

SECTION 5

HYDRAULIC/HYDROLOGIC

5.1 EVALUATION OF FEATURES

a. General. River Street Dam is a stone masonry gravity structure with an easterly wing wall constructed of a stone masonry wall with an upstream earth embankment. Stump Pond is the impoundment created by this dam and has a surface area of about 59 acres at normal pond elevation (301.7). Between normal pond elevation and the top of the dam is 4.5 feet of height available for surcharge storage.

b. Design Data. Design data was not available for the River Street Dam.

c. Experience Data. Published hydrologic and hydraulic data appears to be almost entirely lacking for the River Street Dam. There is a USGS gage on the Mousam River near West Kennebunk (drainage area 105 square miles), but the gage is too far from the River Street Dam (drainage area 39.3 square miles) to be of any real significance. Also the USGS, in Paper No. 1671, published hydrologic data for the River Street Dam. Presented below is a table of estimated flood flows outlined in this paper.

RECURRENCE INTERVAL, (years)	FLOW (cfs)
1	700
10	1450
20	1900
50	2800
100	3500

No record of pond levels could be located. The water surface elevation and discharge of the maximum known flood is unknown.

d. Visual Observations. The discharge at the River Street Dam is controlled only by the spillway section of the dam. Therefore the flow in the Mousam River dictates the discharge from the River Street Dam. The spillway section of the dam discharges into a rock-lined stilling basin and then into a rocky channel which is 50 to 60 feet in width.

e. Test Flood Analysis. Since it is classified as having a significant hazard potential, the River Street Dam was analyzed for passing a test flood equal to one half the probable maximum flood (1/2 PMF). The PMF has been calculated to be 16,025 cfs, according to COE's "Preliminary Guidance for Estimating Probable Maximum Discharges in Phase I Dam Safety Investigations." Therefore, the test flood would be approximately 8000 cfs. Consideration of the effect of storage in Stump Pond (according to the same COE reference) shows reduction in the test flood flow to 7860 cfs. The test flood (1/2 PMF) would overtop the dam by approximately 1.1 feet. The total capacity of the dam at full spillway is 5380 cfs, which is about 68 percent of the test flood.

f. Dam Failure Analysis. The hazard potential was determined by analyzing downstream dam failure hydrographs according to rule of thumb methods as described in an attachment to ETL 1100-2-234 and also by a COE computer routing model, HEC-1. The failure criteria sets the pool elevation at full spillway capacity. The wave height 3500 feet downstream at the second downstream River Street Bridge would be approximately 4.6 feet over the bridge. At the Dam on Number 1 Pond the wave would top the dam spillway by about 3 feet. About 180 feet downstream of this dam is a factory which has a catwalk over the river. It was estimated that this wave would have almost totally dissipated by the time it reaches this location, and therefore would probably cause no damage to the catwalk or the factory structures. A significant hazard rating was assigned to this dam because there is a CMP building and parking area directly adjacent to the dam. It was felt that if failure occurred the possibility existed for loss of life within this building.

SECTION 6

STRUCTURAL STABILITY

6.1 EVALUATION OF STRUCTURAL STABILITY

a. Visual Observations. Based on the visual observation, the River Street Dam appears to be in poor structural condition. The timber spillway deck is seriously deteriorated. Several of the support timbers of this spillway deck are missing and others are displaced and the ends of several are seriously deteriorated. The top of the downstream face of the dam has deflected downstream somewhat, such that the slope of the downstream face is approximately a 1 to 12 batter, the top being out of plumb, downstream.

Seepage was observed through the east abutment and wing wall of the dam and erosion features were noted both upstream of this wing wall and on the downstream toe of this embankment section of the dam.

b. Design and Construction Data. No data concerning original design or construction of the River Street Dam was disclosed in this investigation.

c. Operating Records. None available.

d. Post Construction Changes. After original construction in 1892 the crest of the spillway of the dam was raised approximately 4 feet in 1906. No major changes have been made to the structure, except that the power wheels have been removed and the controlled outlet gates have been closed. Other post construction changes of the dam are related only to deterioration of the various elements of the structure.

e. Seismic Stability. The dam is located in Seismic Zone No. 2 and in accordance with recommended Phase I guidelines, does not warrant seismic analysis.

SECTION 7

ASSESSMENT, RECOMMENDATIONS AND REMEDIAL MEASURES

7.1 DAM ASSESSMENT

a. Condition. Based on the visual inspection and performance history of the River Street Dam, it is assessed to be in poor condition. The spillway of the dam will pass in excess of the 100-year flood. The test flood (1/2 PMF) at the dam has been calculated to be 8000 cfs. The effect of surcharge storage in Stump Pond reduces this flow to 7860 cfs. To pass this flow the structure would be overtopped by about 1.1 feet. The spillway capacity is about 68 percent of the test flood (1/2 PMF). The inspection of the facility resulted in the following major concerns:

(1) The timber spillway deck is seriously deteriorating. Many of the support struts of this deck are missing, others are seriously deteriorating. Loss of a portion of this deck could result in a progressive breaching of the entire structure.

(2) The seepage or leakage occurring through the easterly abutment and wing wall of the dam is causing erosion of the embankment materials.

(3) The outlet gate and the spillway gate at the structure are both inoperable, leaving the dam with no provision for draining of the impoundment as might be necessary during high flow or during an emergency situation.

b. Adequacy of Information. The information available is such that the assessment of the condition of the dam must be based primarily on the visual inspection, the past operational performance of the dam, and engineering judgment.

c. Urgency. The recommendations and remedial measures outlined in 7.2 and 7.3 below should be implemented within 12 months after receipt of this report by the owner.

d. Need for Additional Investigation. Additional investigation is not considered necessary for the current assessment.

7.2 RECOMMENDATIONS

The following should be evaluated by a qualified engineer and implemented as found necessary:

1. Removal of the timber spillway and capping of the remaining structure with concrete to create an erosion resistant surface should be evaluated. In connection with this evaluation, the effect of lowering Stump Pond on the town of Sanford wells should be investigated.

2. A provision for a controlled outlet to pass additional flow during flood events and drain the impoundment in the event of an emergency or for maintenance.

3. A provision to curtail the seepage occurring through and under the east embankment and abutment.

7.3 REMEDIAL MEASURES

a. Operating and Maintenance Procedures. A program of regular inspection and maintenance of the dam should be implemented and a record of these activities should be kept. The following specific maintenance and operating procedures should be implemented:

   1. Clear trees and brush from the embankment portions of the dam.

   2. Install slope protection (riprap) to the upstream faces of the embankment portions of the dam.

   3. Provide around-the-clock surveillance during periods of anticipated high runoff.

   4. Develop a formal warning system and implement its use in the event of an emergency.

5. Have inspections of the dam made by qualified engineers once every year.

7.4 ALTERNATIVES

An alternative to major reconstruction at the dam would be to remove the structure.

VISUAL INSPECTION CHECKLIST
PARTY ORGANIZATION

PROJECT River Street Dam

DATE 9-7-78

TIME AM

WEATHER Fair

W.S. ELEV. 301.7 U.S. 286± DN.S.

PARTY:

1. Brian Bisson
2. Stephen Cole
3. Ernest Jurick
4. John Kimble
5. Henry Oatley
6.
7.
8.
9.
10.

	PROJECT FEATURE	INSPECTED BY	REMARKS
1.	Hydraulics/Hydrology	Brian Bisson	
2.	Structural	Cole, Oatley	
3.	Geotechnical	Cole	
4.	Survey	Kimble	
5.	Photography	Jurick	
6.			
7.			
8.			
9.			
10.			

NOTE: See Supplementary Inspection Notes Following Checklist

INSPECTION CHECKLIST

PROJECT River Street Dam DATE 9-7-78

PROJECT FEATURE Embankment NAME Stephen Cole

DISCIPLINE Geotechnical NAME

AREA EVALUATED	CONDITIONS
DAM EMBANKMENT	
Crest Elevation	307±
Current Pool Elevation	302±
Maximum Impoundment to Date	Unknown
Surface Cracks	None
Pavement Condition	Turf, brush, trees
Movement or Settlement of Crest	Local depression, upstream face, east wing wall
Lateral Movement	None
Vertical Alignment	Good
Horizontal Alignment	Good
Condition at Abutment and at Concrete Structures	Seepage through east abutment
Indications of Movement of Structural Items on Slopes	None
Trespassing on Slopes	None
Sloughing or Erosion of Slopes or Abutments	Some, easterly embankment, near spring at toe
Vegetation	Embankment tree & brush covered
Rock Slope Protection - Riprap Failures	No riprap, upstream slope, some erosion

INSPECTION CHECKLIST

PROJECT River Street Dam DATE 9-7-78

PROJECT FEATURE Embankment NAME Stephen Cole

DISCIPLINE Geotechnical NAME

AREA EVALUATED	CONDITIONS
DAM EMBANKMENT (cont.)	
Unusual Movement or Cracking at or near Toes	None
Unusual Embankment or Downstream Seepage	50 gpm through easterly embankment near abutment
Piping or Boils	Spring below east abutment
Foundation Drainage Features	None
Toe Drains	None
Instrumentation System	None

INSPECTION CHECKLIST

PROJECT River Street Dam DATE 9/7/78

PROJECT FEATURE Intake Channel/Structure NAME Stephen Cole

DISCIPLINE Geotechnical, Structural Hydrology/Hydraulics NAME Oatley, Bisson

AREA EVALUATED	CONDITION
OUTLET WORKS - INTAKE CHANNEL AND INTAKE STRUCTURE	
a. Approach Channel	
Slope Conditions	Good - flat
Bottom Conditions	Gravel, some silt, no debris
Rock Slides or Falls	None
Log Boom	None
Debris	None
Condition of Concrete Lining	N/A
Drains or Weep Holes	None
b. Intake Structure	
Condition of Concrete	Stone Masonry - appears okay
Stop Logs and Slots	None

INSPECTION CHECKLIST

PROJECT River Street Dam DATE 9/7/78

PROJECT FEATURE Control Tower NAME Stephen Cole

DISCIPLINE Structural NAME Henry Oatley

AREA EVALUATED	CONDITION
OUTLET WORKS - CONTROL TOWER	
a. Concrete and Structural	NO CONTROL TOWER AT DAM
General Condition	
Condition of Joints	
Spalling	
Visible Reinforcing	
Rusting or Staining of Concrete	
Any Seepage or Efflorescence	
Joint Alignment	
Unusual Seepage or Leaks in Gate Chamber	
Cracks	
Rusting or Corrosion of Steel	
b. Mechanical and Electrical	
Air Vents	N/A
Float Wells	N/A
Gate Hoist	No gate hoist
Elevator	N/A
Hydraulic System	N/A

INSPECTION CHECKLIST

PROJECT River Street Dam DATE 9/7/78

PROJECT FEATURE Control Tower NAME Stephen Cole

DISCIPLINE Structural NAME Henry Oatley

AREA EVALUATED	CONDITION
OUTLET WORKS - CONTROL TOWER (cont.)	
Service Gates	Gate in place, minor leakage, could not inspect in detail
Emergency Gates	As above.
Lightning Protection System	N/A
Emergency Power System	N/A
Wiring and Lighting System	N/A

INSPECTION CHECKLIST

PROJECT River Street Dam DATE 9/7/78

PROJECT FEATURE Transition & Conduit NAME Henry Oatley

DISCIPLINE Structural Hydrology/Hydraulics NAME Brian Bisson

AREA EVALUATED		CONDITION
OUTLET WORKS - TRANSITION AND CONDUIT		
General Condition of Concrete		Stone masonry
Rust or Staining on Concrete		None
Spalling		N/A
Erosion or Cavitation		None
Cracking		None
Alignment of Monoliths		N/A
Alignment of Joints	✓	Masonry, joints okay
Numbering of Monoliths		N/A

PERIODIC INSPECTION CHECKLIST

PROJECT River Street Dam DATE 9/7/78

PROJECT FEATURE Outlet Structure/Channel NAME Stephen Cole

DISCIPLINE Structural, Geotechnical Hydrology/Hydraulics NAME Oatley, Bisson

AREA EVALUATED	CONDITION
OUTLET WORKS - OUTLET STRUCTURE AND OUTLET CHANNEL	
General Condition of Concrete	Stone Masonry - fair
Rust or Staining	None
Spalling	N/A
Erosion or Cavitation	None
Visible Reinforcing	N/A
Any Seepage or Efflorescence	Minor seepage
Condition at Joints	Okay
Drain holes	None
Channel	Bedrock - clear
Loose Rock or Trees Overhanging Channel	None
Condition of Discharge Channel	Good

INSPECTION CHECKLIST

PROJECT River Street Dam DATE 9/7/78

PROJECT FEATURE Spillway NAME Stephen Cole

DISCIPLINE Geotechnical/Structural Hydrology/Hydraulics NAME Oatley, Bisson

AREA EVALUATED	CONDITION
OUTLET WORKS - SPILLWAY WEIR, APPROACH AND DISCHARGE CHANNELS	
a. Approach Channel	
General Condition	Good, cove of impoundment
Loose Rock Overhanging Channel	None
Trees Overhanging Channel	None
Floor of Approach Channel	Gravel and silt - okay
b. Weir and Training Walls	
General Condition of Timber	Poor, self-loading
Rust or Staining	N/A (timber decks)
Spalling	N/A (support members)
Any Visible Reinforcing	N/A, gone & deteriorated
Any Seepage or Efflorescence	N/A, generally poor condition
Drain Holes	None
c. Discharge Channel	
General Condition	Good
Loose Rock Overhanging Channel	None
Trees Overhanging Channel	None
Floor of Channel	Bedrock, boulders, clear
Other Obstructions	Trees about 40 feet downstream from spillway, below westerly of spillway

INSPECTION CHECKLIST

PROJECT River Street Dam DATE 9/7/78

PROJECT FEATURE Service Bridge NAME Stephen Cole

DISCIPLINE Structural NAME

AREA EVALUATED	CONDITION
OUTLET WORKS - SERVICE BRIDGE	
a. Super Structure	NOT APPLICABLE
Bearings	
Anchor Bolts	
Bridge Seat	
Longitudinal Members	
Under Side of Deck	
Secondary Bracing	
Deck	
Drainage System	
Railings	
Expansion Joints	
Paint	
b. Abutment & Piers	
General Condition of Concrete	
Alignment of Abutment	
Approach to Bridge	
Condition of Seat & Backwall	

SUPPLEMENTARY INSPECTION NOTES

1. CONCRETE AND STONE MASONRY STRUCTURES

In general, the River Street Dam is constructed of stone masonry. The only concrete element in the dam is an area around the gated outlet.

a. Concrete Surfaces - The surface of the concrete in the area of the gated spillway is in good condition with no erosion or spalling evident.

Stone Masonry Surfaces - The downstream face of the dam is constructed of dry laid stone masonry. This unbound masonry was found to be tight with the exception of a few small stones which were found to be loose. It appears that the masonry may have been grouted in the past, however, there is little grout left in the masonry faces at this time. The east and west abutments of the dam are constructed of dry laid stone masonry. These abutment walls are both in good condition. The easterly wing wall of the dam is constructed of earth fill with a downstream masonry face. The section of the wing wall adjacent to the spillway of the dam is a mortar laid stone masonry wall. The easterly portion of the wall is dry laid masonry.

b. Structural Cracking - The concrete and stone masonry portions of the dam show no evidence of cracking.

c. Movement - The masonry portions of the dam show no evidence of settlement or vertical movement. The top of the downstream face of the dam has deflected downstream somewhat, such that the slope of the downstream face is approximately a 1 to 12 batter, the top being out of plumb, downstream.

d. Junctions - The junctions of the dam including the west abutment, the outlet area of the dam, the east abutment and the east wing wall all appear to be in good condition.

e. Drains - No drain pipes or formal drainage systems were observed. The dry laid masonry portions of the dam have inherent drainage characteristics.

f. Water Passages - The spillway crest of the dam is a timber section. The outlet control section of the dam consists of dry laid stone masonry. The outlet appeared to have been closed off and no water flow presently occurs through this section.

g. Seepage or Leakage - A small amount of seepage was observed to be occurring in the downstream masonry face of the structure. There are some areas at the toe of the structure that appeared to have small buildups of sand which appears to have eroded from the interior of the dam. There was also an area on the upstream side of this masonry face which appeared to be an eroded depression indicating the loss of soil fines down through the dam. This area had apparently been filled in the past. In the easterly wing wall of the dam adjacent to the gated outlet, about 50 gpm of seepage is occurring through the lower part of the masonry wall. This seepage is clear and appears to be causing no erosion at present.

h. Monolith Joints - Not applicable.

i. Foundation - Based on the visual observation it appears that the River Street Dam is founded on soil. There appears to be no undermining or distress of the foundation of the dam.

j. Abutments - The westerly abutment of the dam consists of a dry laid stone masonry wall. It appears to be in good condition and shows no sign of movement or seepage. The easterly abutment of the dam is a dry laid stone masonry wall which ties into a mortar laid wall which makes up a portion of the easterly embankment wing wall. Substantial seepage is occurring adjacent to this abutment through the stone masonry wall.

2. EMBANKMENT STRUCTURES

a. Settlement - The embankment section of the easterly wing wall shows no sign of overall settlement. A local depression was observed on the upstream face at or a little below the water line. This appears to be an area where erosion of fines has occurred down through the embankment portion of the dam.

b. Slope Stability - The easterly wing wall of the dam is an earth fill retained by a downstream stone masonry wall. The wall appears true to line and grade and no movement is apparent. The embankment appears stable.

c. Seepage - A substantial amount of seepage is occurring below the easterly embankment at the edge of the stream. Some erosion has occurred in this area and a spring has formed which is flowing at approximately 50 gpm. The northeasterly portion of this wing wall shows no signs of seepage.

d. Drainage System - No drainage system is known to exist in the embankment portion of the dam and none was observed.

e. Slope Protection - There is no provision for slope protection on the upstream slope of the easterly embankment section of the dam. Some erosion has occurred at and above the water line apparently due to wave action. The embankment section is tree and brush covered.

3. SPILLWAY STRUCTURES

The spillway of the dam consists of a timber self-loading deck which is located on top of the stone masonry portion of the dam. This deck was found to be in poor condition. Many of the supporting struts are missing and the remaining struts appear to be in poor condition, particularly at their ends where they meet the deck and where they meet the supporting crib work in the streambed. The surface or crest of the deck has settled in one area as much as six inches. Soil fill has been placed in the upstream section of this timber deck and the weight of this additional fill appears to be causing substantial distress to the timber deck.

a. Control Gates and Operating Machinery - There is a control gate located in the easterly portion of the dam. This gate is a timber vertical lift type but presently there are no means of operating the gate at the dam.

b. Unlined Saddle Spillways - Not applicable.

c. Approach and Outlet Channels - The approach channel to the timber spillway and the planked gated spillway both appear to be clear and unobstructed. See photograph 5. The outlet channel was found to be clear and unobstructed. See photograph 3. The stilling basin consists of a stone lined channel below the dam.

4. OUTLET WORKS

There appears to be a low level control outlet located in the easterly portion of the dam. This outlet is closed, no water was found to be flowing through the outlet. There were no means to open this outlet observed at the dam. A detailed inspection of this outlet could not be made due to waterlevel in the impoundment.

5. INSTRUMENTATION

None.

6. RESERVOIR

a. Shoreline - No major active or inactive land slide areas on Stump Pond were observed.

b. Sedimentation - There have been no substantial developments in this area in recent years which would add to the sediment load to this pond.

c. Potential Upstream Hazards - The test flood could possibly damage some upstream residences. Maximum water storage would not tend to cause any substantial upstream damage.

d. Watershed Runoff Potential - The majority of this watershed is of a rural nature containing a large number of lakes and ponds. These water areas contribute to a large storage capacity within the watershed, causing runoffs to concentrate closer to a mean value without violent floods and droughts.

7. DOWNSTREAM CHANNEL

The downstream channel at this dam has sufficient capacity to handle flood flow with minor damage to industrial buildings and parking. In the event of a breach in this dam similar minor damage could be anticipated, thus the significant hazard potential.

8. OPERATION AND MAINTENANCE FEATURES

a. Reservoir Regulation Plan - No formal plan available.

b. Maintenance - Based on the visual observation it appears that maintenance is done at the dam on an as-needed basis. The dam lacks the benefit of routine maintenance. The timber deck spillway was found to be in poor condition and it appears that maintenance has not been done on the dam recently.

APPENDIX B

ENGINEERING DATA

This appendix lists the engineering data collected either from project records and other sources of data developed as a result of the visual inspection. The contents of this appendix are listed below.

Appendix	Description
B-1	Inspection History
B-2	Plan, Profile and Cross-Sections

APPENDIX B-1

INSPECTION HISTORY

On January 17, 1978 a cursory inspection of the River Street Dam was made by Maine Department of Transportation personnel. A copy of their report is attached.

A copy of a report "Mousam River Dam Restoration" by DesRoberts and Henry Inc. is included in this section.

STATE OF MAINE

Inter-Departmental Memorandum

Date January 17, 1978

To the File

Dept.

From Philip J. Libby, Project Design Engineer

Dept. Transportation - Bridge Design

Subject Supplemental Report to Mill Street Dam Inspection Report

At the suggestion of John Bird of the York County Civil Emergency Preparedness Committee; Tony Hayes, Engineer for the Town of Sanford showed us two other dams below Mill Street Dam, Bridge Street Dam, which is immediately below the Mill Street Dam, holds back a very small pond. A scour developed after the Sanitary District installed a sewer line at the East end of the dam. The Town of Sanford plans to protect the area with an additional concrete retaining wall as the area along the East bank is being developed with a shopping area.

The next dam downstream, called "Stump Pond" locally, showed considerable deterioration on the top 4' to 5' of the dam, being of timber construction, the length is about 100'. The remainder is stone and earth construction in apparent good condition. Immediately upstream from the dam there is fill, that is said to be a causeway built during the last renovation of the dam. There appears to be only one or two feet of water over this barrier. This limits the quantity of water that would be released by a rupture at the dam itself. It also relieves the pressure on the structure. This condition lessens the danger downstream from the dam.

The Town of Sanford is aware of the condition and plans to take step to remedy the condition of this dam also.

PJL/jcg

COPY

PHASE I REPORT

MOUSAM RIVER DAM RESTORATION

(1977 UPDATE)

RIVER STREET

SANFORD, MAINE

PHASE COPY

MOUSAM RIVER DAM RESTORATION

(1977 UPDATE)

This report updates the DesRoberts & Henry, Inc. report of October 14, 1974 on "Phase I" of the Mousam River Dam Project, as first proposed in our letter of November 13, 1972 to Raymond Nadeau, then Chairman of the Sanford Board of Selectmen. At that time we proposed that the investigation and repair of the Mousam River Dam be accomplished in two phases: Phase I would consist of a location survey, hydrographic survey, watershed determination, flow analysis, etc., for the purpose of preparing a detailed report and cost estimate to drain, examine, evaluate and prepare recommendations for the repair and upgrading of the dam. Phase II would then be the preparation of detailed plans, specifications and cost estimates for the actual repair work to be performed.

As a result of our investigation, we recommend that the draining of the pond be combined with the installation of a permanent control gate which would allow pond draining and/or flow control both now and in the future. We propose to have the gate installed at the entrance to the existing sluiceway (now plugged) located under the Northeast end of the dam. (See site plan, Enc. #1) This phase of the project would entail three major construction operations:

1) Construction of a temporary cofferdam around the entrance to the sluiceway, and construction of a 200' temporary access road.

2) Removal of debris from the sluiceway, then evaluation, design, purchase, and installation of a suitable sluicegate.

3) Removal of the cofferdam.

I. CONSTRUCTION OF THE COFFERDAM

We are proposing construction of a temporary sheet pile cofferdam in the location shown on the site plan, having a perimeter of approximately 110 lf. and giving a work area of roughly 50' X 25'. This should enable the entire area at the entrance of the sluiceway to be properly excavated, debris removed, etc. Before going ahead with the sheetpiling, subsurface exploration should be carried out to determine the permeability of the soil below the work area and the depth to ledge. The soil report for this area (Appendix #1) indicates a predominantly gravelly, highly permeable subsurface composition to a depth greater than 10 feet, which necessitates driving the sheetpiling either to ledge or to a depth of some 50 feet, in order to prevent excessive subsurface erosion under the cofferdam into the work area, resulting is instability of the excavation.

Based on a "worst case" situation, where ledge is not encountered within 50 feet, out estimate for the construction of the cofferdam, based on using PDA 27 steel sheeting, is ---------- $47,000.00

This includes the cost of building an access road to the site along the Northeast shore of the pond, as shown on the site plan, and mobilizing a pile-driving rig. It should be recognized that the cost of this item could be reduced greatly if a subsurface exploration shows either ledge at a depth shallower than 50' or subsoil of lower permeability than the area soil report indicates.

We recommend that a contractor experienced in cofferdam construction be employed for this phase of the project and that he be held resposible for the safety of the work area throughout the project.

II. CLEARING SLUICEWAY AND INSTALLING SLUICEGATE.

After the cofferdam is installed and the work area dewatered, excavation and clearing can be accomplished by crane, clamshell, and/or manual labor. As soon as the area is cleaned out we would inspect the sluiceway, and if desired for a fee to be negotiated, would design a detailed, permanent gate installation (detailed plans for actual repair work not included in Phase I). As an alternative, the sluicegate supplier and the installer (probably the general contractor) could formulate detailed construction plans. We would still be available to check the sluiceway area for possible problems as part of Phase I.

At this time it appears that the best control gate to use on this project is the Armco Model 55-10 (see Appendix #2), or equivalent. Using this as a basis for an estimate, our estimate for the clearing of the sluiceway and the design, purchase, and installation of the sluicegate, including installation of a thimble, along with necessary dewatering of the work area, is--- $22,000.00

After examining the flow records of the Mousam River (Appendix #3) and sampling the flow in the vicinity of the dam during a high-runoff period, and analyzing the probable size and flow characteristics of the sluiceway when cleared, it appears that the proposed gate will enable Stump Pond to be drained expeditiously during all but the times of highest flows. In addition it will allow the level of the pond to be lowered and held to any desired level.

III. REMOVING THE COFFERDAM.

Once the sluicegate is installed, inspected and determined to be operating properly, the temporary cofferdam can be removed. This is usually accomplished by the cofferdam contractor pulling the sheetpiling from the ground and retaining what is reusable. The estimated cost for this item, as a percentage of the initial "worst case" cost of installing the cofferdam, is ----------$8,000.00

IV. DRAINING THE POND.

At this point the Town of Sanford may drain Stump Pond at any time. At such time, to complete Phase I, we will examine, evaluate, and prepare recommendations for the repair and ungrading of the rest of the dam. If desired, we may at this time be able to propose a system of freeboard control that will effectively allow the Town to raise, as well as lower, the level of Stump Pond. This would have the effect of charging the water table to improve the performance of wells in the area. Details for this, as well as for repair of the existing structure, will be developed as part of Phase II,

V. TOTAL CONSTRUCTION COST.

Based on our estimates, the total construction cost for Phase I of the project becomes ----------$77,000.00

This breaks down to $55,000.00 for construction and removal of a temporary cofferdam (substantially less if ledge is encountered at shallow depth) and $22,000. for installation of the permanent control gate.

State: Maine Date: June 1972 Soil: Hinckley gravelly sandy loam

SUBJECT TO UPDATING Map Symbol: 52B

These are deep, excessively drained sandy and gravelly soils developed in coarse outwash material composed of sandstone, granites, quartzite, quartz and some slate and shale. They occupy nearly level to very steep areas of outwash plains, terraces, deltas and eskers. Slopes range from 0 to more than 60%. Most of these Hinckley soils have a dark brown gravelly sandy loam surface 6 to 10 inches thick over a yellowish brown gravelly sandy loam 8 to 12 inches thick. Sand and gravel lies below the second layer. Coarse fragments range from 20 to 30% in the upper soil layers. Depth to bedrock is usually more than 10 feet; depth to seasonal high water is more than 5 feet. Moisture holding for plants is very low. Permeability is very rapid. Runoff is slight. Reaction ranges from extremely through medium acid. Natural fertility is very low. Susceptibility to frost is low. Cut slopes and trench faces are unstable and subject to sloughing. These soils are non-sticky, non-plastic poorly graded sands and gravels borderline to silty sands and gravels. Unified classification is principally SM, SP, or GP.

ENGINEERING INTERPRETATIONS

Estimated Chemical and Physical Properties

General Soil Profile (Inches)	Classification			% Coarse Fragments > 3"	% of Material Passing			Permeability	Available Water Capacity	Soil Reaction (pH)	Shrink Swell Potential
	USDA Texture	Unified	AASHO		#4	#10	#200	Inches per Hr.	in./in.		
0-10	gravelly sandy loam	SM, ML	A-1 A-2 A-4	0-35	70-95	60-90	15-55	> 6.3	.03-.23	<4.5-6.0	Low
10-18	gravelly loamy sand	SM,GM, GP-GM	A-1 A-2	0-35	60-90	50-80	10-30	> 6.3	.01-.11	4.5-6.0	Low
18-40	sand & gravel	SP, SP-SM GP, GP-GM	A-1	10-40	30-70	20-60	0-10	> 6.3	.01-.06	4.5-6.0	Low

Suitability as a source of topsoil is poor; suitability as a source of sand and gravel is good; suitability as a source of roadfill is good.

SOIL LIMITATIONS FOR COMMUNITY PLANNING

Use	Slope	Limitation	Major Factors Affecting Use
Septic Sewage Disposal	A,B,C	Moderate	Very rapid permeability; possible groundwater contamination; poor filtration.
	D,E	Severe	Slope; seepage, poor filtration.
Lagoon Sewage Disposal	A	Very Severe	Very rapid permeability; coarse gravelly substrata.
	B,C,D,E	Very Severe	Slope; very rapid permeability.
Dumps and Junk Yards	A,B	Very Severe	Very rapid permeability; possible groundwater contamination.
	C,D,E	Very Severe	Slope; seepage; possible groundwater contamination.
Sanitary Land Fill	A, B	Very Severe	Very rapid permeability; possible groundwater contamination.
	C,D,E	Very Severe	Slope; very rapid permeability.
Earth Covered Fallout Shelters	All	Slight	
House Bldg. with Septic Sewage Disposal (includes basement)	A,B,C	Moderate	Very rapid permeability; possible groundwater contamination.
	D,E	Very Severe	Slope; groundwater contamination; septic seepage.
House Bldg. with Public Sewage Disposal (includes basement)	A,B,C	Slight	
	D,E	Very Severe	Slope.
Pipe & Sewer Lines - Const. & Maintenance	A,B,C	Severe	Unstable substratum; sloughing; cobbly.
	D,E	Very Severe	Slope; unstable substratum; sloughing; cobbly.
Cemeteries	A,B,C	Moderate	Very rapid permeability; very droughty; gravelly and cobbly substratum.
	D,E	Severe	Slope; droughty; gravelly and cobbly substratum.
Excavations	A,B,C	Slight	
	D,E	Severe	Slope

SOIL LIMITATIONS FOR RECREATION DEVELOPMENT			
Use	Slope	Limitation	Major Factors Affecting Use
Wilderness Tent Sites	A,B	Slight	
	C,D,E	Severe	Steepness of slope.
Tenting & Picnic Areas (Intensive)	A,B	Slight	
	C,D,E	Severe	Steepness of slope.
Trailer Park Sites	A,B	Slight	
	C,D,E	Severe	Steepness of slope.
Camp & Cottage Sites	A,B	Moderate	Very low moisture holding capacity; very rapid permeability, possible ground water contamination.
	C,D,E	Severe	Steepness of slope.
Playing Fields Shooting Ranges	All	Severe	Very low moisture holding capacity; low fertility; very strongly acid.
Golf Courses	A,B,C	Moderate	Very low moisture holding capacity; low fertility; very strongly acid.
	D,E	Severe	Steepness of slope.
Ski Slopes	All	Severe	Lack of slope or short slopes.

SOIL LIMITATIONS FOR FARMING			
Use	Slope	Limitation	Major Factors Affecting Use
Cultivated Crops: Corn, peas, oats	A,B	Moderate	Very low moisture holding capacity; low fertility; very strongly acid; very rapid permeability.
	C,D,E	Severe	Steepness of slope.
Potatoes	All	Severe	Very low moisture holding capacity; low fertility; very rapid permeability.
Sugar Beets	All	Very Severe	Very strongly acid; low fertility; very low moisture holding capacity; very rapid permeability.
Group I-Forage Alfalfa-Brome	All	Severe	Very strongly acid; low fertility; very rapid permeability.
Group II-Forage Red Clover-Timothy	All	Severe	Very strongly acid; low fertility; very rapid permeability; very low moisture holding capacity.
Orchards-Apples	All	Severe	Very strongly acid; low fertility; very low moisture holding capacity; very rapid permeability.
Land Use Capability	A,B	IIIs	
	C	IVs	
	D	VIs	
	E	VIIs	

SOIL LIMITATIONS FOR WILDLIFE HABITAT			
Use	Slope	Limitation	Major Factors Affecting Use
Openland Wildlife	A,B,C	Moderate	Very strongly acid; low fertility.
	D,E	Severe	Steepness of slope.
Woodland Wildlife	All	Severe	Very low moisture holding capacity; very strongly acid; low fertility; very rapid permeability.
Wetland Wildlife	All	Very Severe	Very rapid permeability.

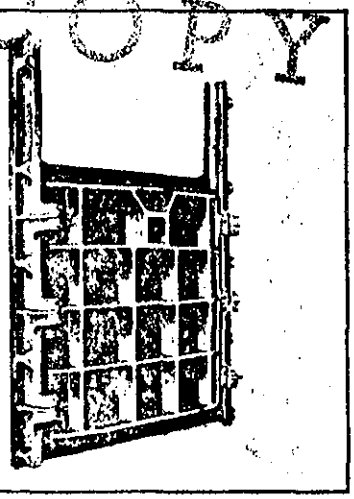
SOIL LIMITATIONS FOR SELECTED FARM AND NON-FARM USES			
Use	Slope	Limitation	Major Factors Affecting Use
Highway Location	All	Slight	
Pond Reservoir Area	All	Severe	Very rapid permeability.
Pond Embankment	All	Severe	Very rapid permeability.
Agricultural Drainage	All	Slight	Not needed. Excessively drained.
Terraces & Diversions	All	Slight	Irregular topography; difficult to vegetate.
Waterways	All	Severe	Very low water holding capacity; difficult to vegetate
Irrigation	All	Severe	Very low water holding capacity; very rapid permeability.
Corrosivity			For steel is very low; for concrete is high.

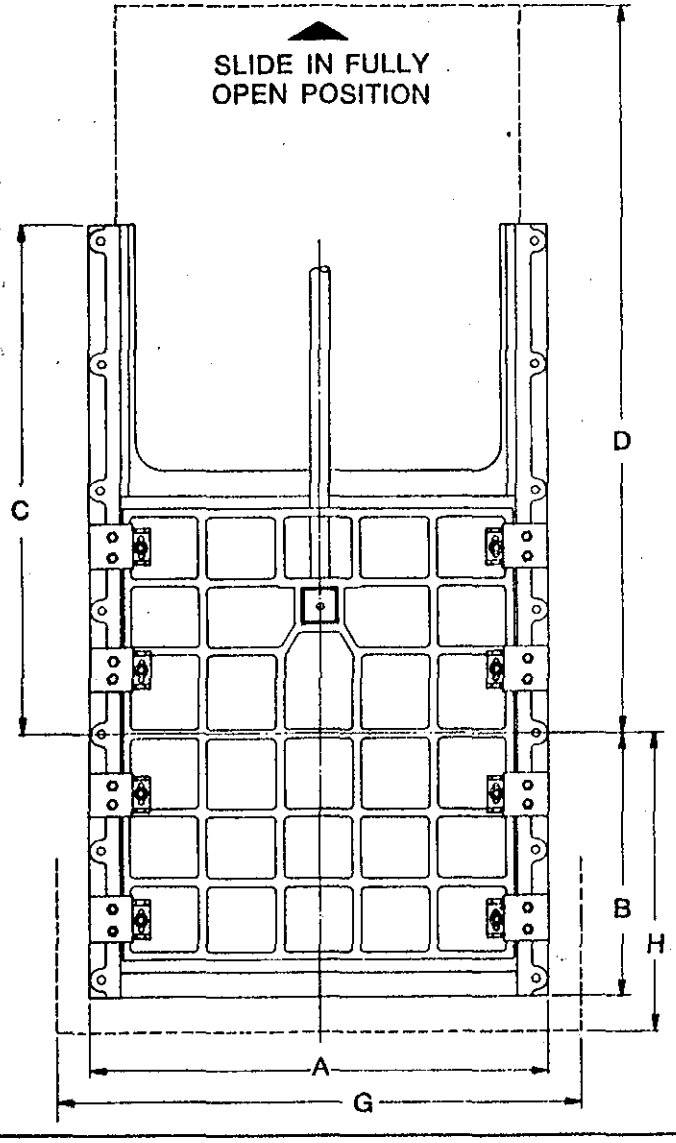
UNITED STATES DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE, in cooperation with MAINE AGRICULTURAL EXPERIMENT STATION, UNIVERSITY OF MAINE and MAINE SOIL AND WATER CONSERVATION COMMISSION--National Cooperative Soil Survey - USA

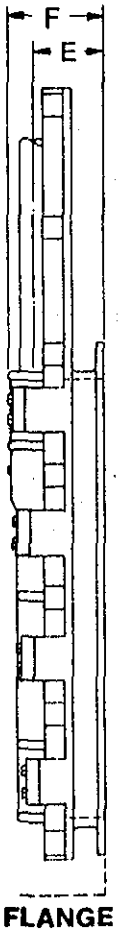
HEAVY DUTY SLUICE GATES

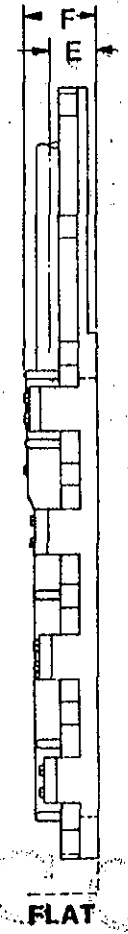
For Seating Heads to 55 Feet
For Unseating Heads to 10 Feet

- Rectangular Opening
- Rising Stem
- Standard or Flush Bottom
- Flange or Flat Back
- Adjustable Side Wedges









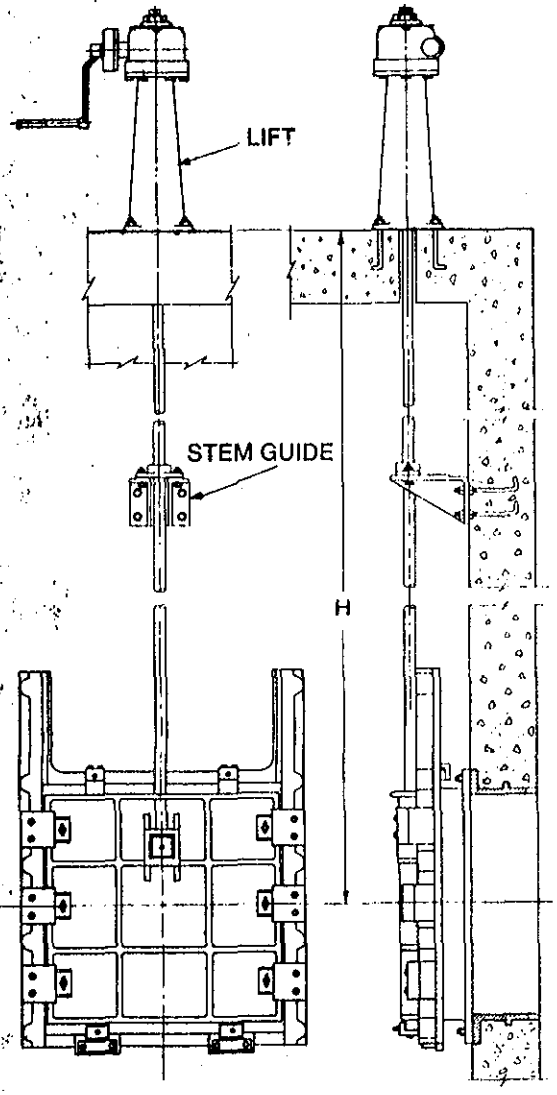
ARMCO GATES/HEAVY DUTY SERIES

COPY

TYPICAL INSTALLATIONS

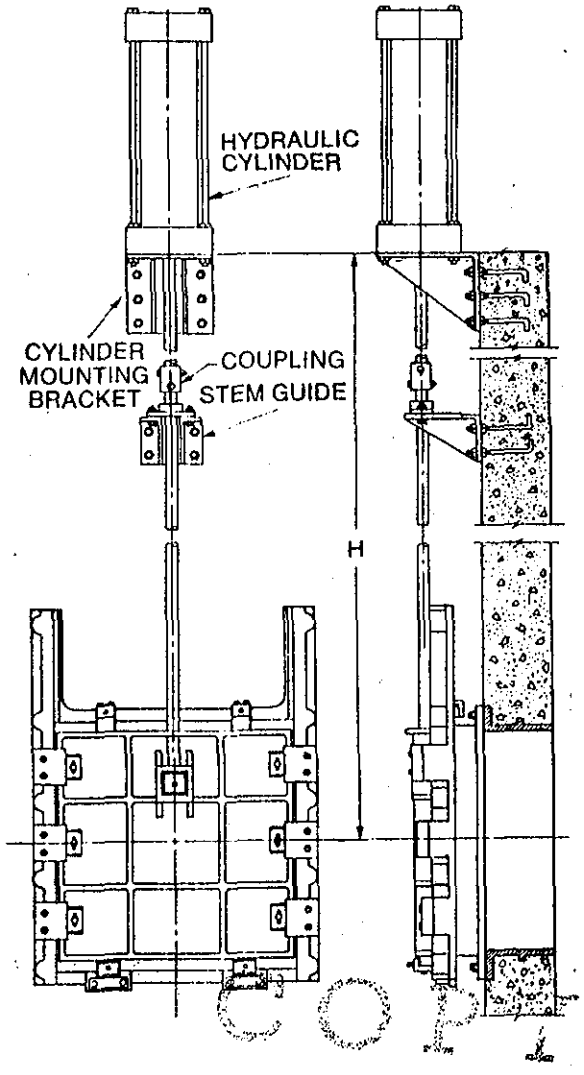
With enclosed geared pedestal lift

- Rising stem gate
- Geared pedestal lift
- Flange back mounted on "F" thimble
- Top and bottom wedges for back pressure
- Standard bottom closure
- Fully adjustable stem guide



With hydraulic operator cylinder mounted on wall bracket

- Rising stem gate
- Flange back mounted on "F" thimble
- Top and bottom wedges for back pressure
- Standard bottom closure
- Cylinder operator mounted on wall bracket
- Fully adjustable stem guide
- Stem splice



01069500 MOUSAM RIVER NEAR WEST KENNEBUNK, ME

LOCATION.--Lat 43°25'04", long 70°39'32", York County, Hydrologic Unit 01060003, on right bank 100 ft (30 m) upstream from highway bridge, 1.4 mi (2.3 km) downstream from Middle Branch, and 4.0 mi (6.4 km) west of West Kennebunk.

DRAINAGE AREA.--105 mi² (272 km²).

PERIOD OF RECORD.--October 1939 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 170 ft (52 m), from topographic map.

REMARKS.--Records good. Flow regulated by Square Pond and Mousam and Estes Lakes, combined capacity, about 700,000,000 ft³ (20,000,000 m³) and powerplants upstream.

AVERAGE DISCHARGE.--37 years, 179 ft³/s (5.069 m³/s).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,830 ft³/s (80.1 m³/s) Sept. 12, 1954, gage height, 5.69 ft (1.734 m); minimum daily, 0.4 ft³/s (0.011 m³/s) Nov. 10, 15, 16, 1964.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,160 ft³/s (32.9 m³/s) Apr. 2, gage height, 3.18 ft (0.969 m); minimum daily, 8.1 ft³/s (0.23 m³/s) Oct. 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	105	153	343	225	316	288	547	184	185	127	117	123
2	90	149	329	280	597	365	1030	281	70	116	166	9.5
3	75	145	333	217	580	279	756	323	82	18	102	11
4	68	152	285	203	448	261	606	294	182	18	39	12
5	61	140	272	186	425	263	519	241	182	18	27	13
6	57	130	266	150	390	367	448	216	66	18	21	11
7	54	125	263	205	349	355	405	204	12	19	27	9.0
8	64	130	216	210	325	299	371	217	12	19	39	8.9
9	56	150	187	183	310	258	349	194	13	19	94	9.5
10	62	180	509	101	300	242	298	189	14	19	169	10
11	13	260	523	135	288	192	309	186	16	20	191	11
12	34	320	356	233	295	212	279	190	16	21	186	11
13	65	410	310	120	278	302	257	199	21	21	72	10
14	77	520	284	289	284	259	266	201	138	138	19	11
15	133	446	274	281	278	248	276	214	182	71	22	11
16	68	368	270	262	278	239	231	220	70	69	142	11
17	8.1	349	234	237	315	230	199	213	16	67	168	13
18	136	336	234	208	340	217	124	216	17	56	161	32
19	210	312	199	193	324	211	201	383	18	49	63	37
20	260	296	182	184	356	213	178	684	58	145	16	28
21	282	308	185	180	321	334	183	287	260	185	16	92
22	238	413	196	178	299	552	179	392	147	70	17	160
23	204	354	186	176	387	425	180	360	183	18	18	48
24	186	301	169	176	443	373	179	358	72	19	17	9.5
25	176	278	166	176	273	396	176	350	20	16	18	9.5
26	208	260	222	176	272	439	176	339	19	16	18	9.7
27	192	292	287	179	303	450	179	268	19	17	18	10
28	173	442	299	320	366	516	194	190	20	17	18	9.9
29	162	388	271	478	329	511	192	187	20	18	19	9.1
30	177	353	248	395	---	442	191	185	20	18	14	32
31	165	---	241	332	---	409	---	185	---	107	115	---
TOTAL	3859.1	8460	8335	6868	10069	10147	9478	8170	2150	1549	2129	781.6
MEAN	124	282	269	222	347	327	316	264	71.7	50.0	68.7	26.1
MAX	282	520	523	478	597	552	1030	684	260	185	191	160
MIN	8.1	125	166	101	272	192	124	184	12	16	14	8.9
†	357	326	343	412	457	501	505	484	457	439	429	409

CAL YR 1975 TOTAL 67001.7 MEAN 184 MAX 1830 MIN 7.0
WTR YR 1976 TOTAL 71995.7 MEAN 197 MAX 1030 MIN 8.1

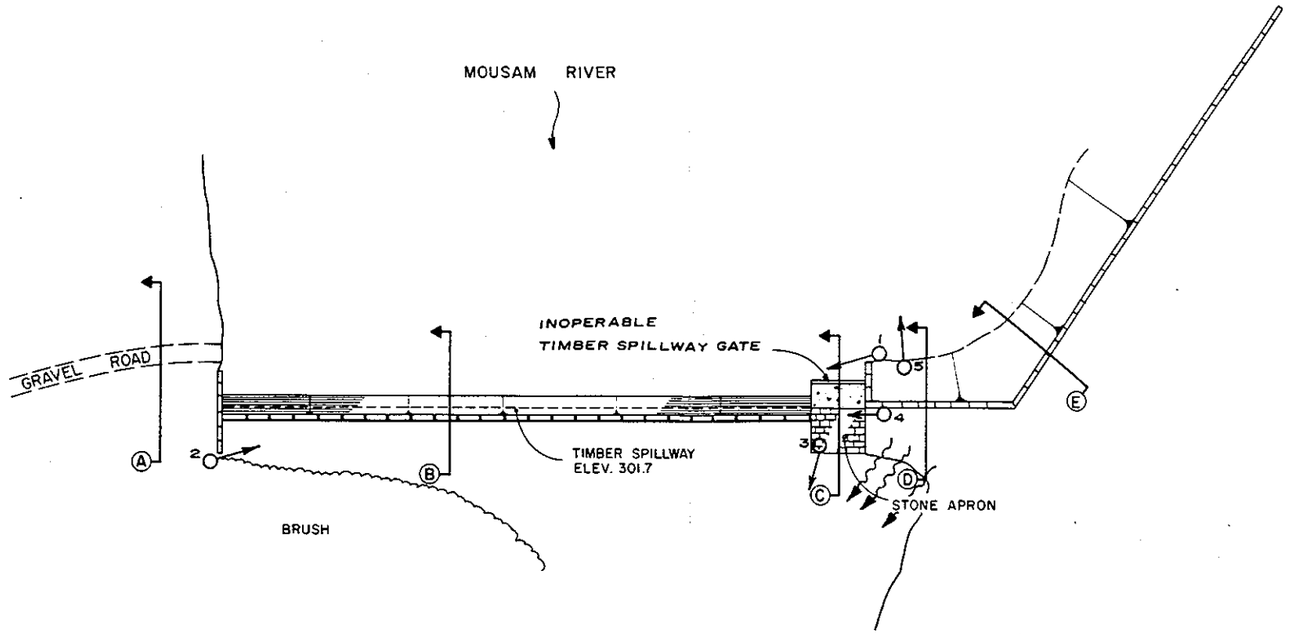
† Monthend contents, in millions of cubic feet, in Square Pond and Mousam Lake; records furnished by Town of Sanford.

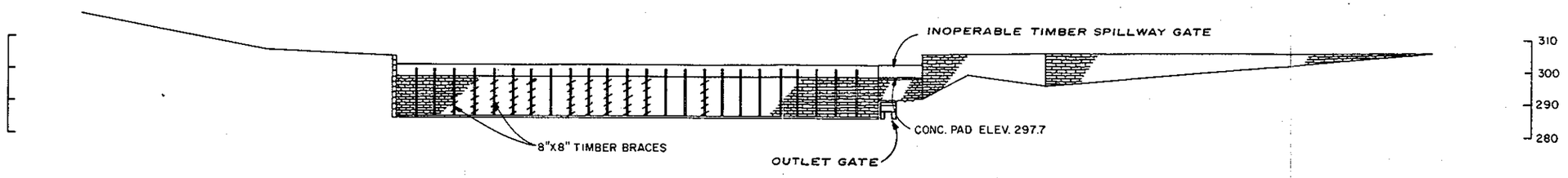
App. # 3

APPENDIX B-2

PLAN, PROFILE AND CROSS-SECTIONS

A plan, profile and cross-sections with limited detail were developed based on the data obtained during the visual inspection. Copies of these drawings are attached.





LEGEND

SEEPAGE

MISSING BRACE

PHOTOGRAPH LOCATION/
ORIENTATION

HORIZONTAL & VERTICAL SCALE

0 40 120 feet

B-2.1

EDWARD J. JORDAN CO., INC. PORTLAND, MAINE

U.S. ARMY ENGINEER DIV. NEW ENGLAND CORPS OF ENGINEERS WALTHAM, MASS.

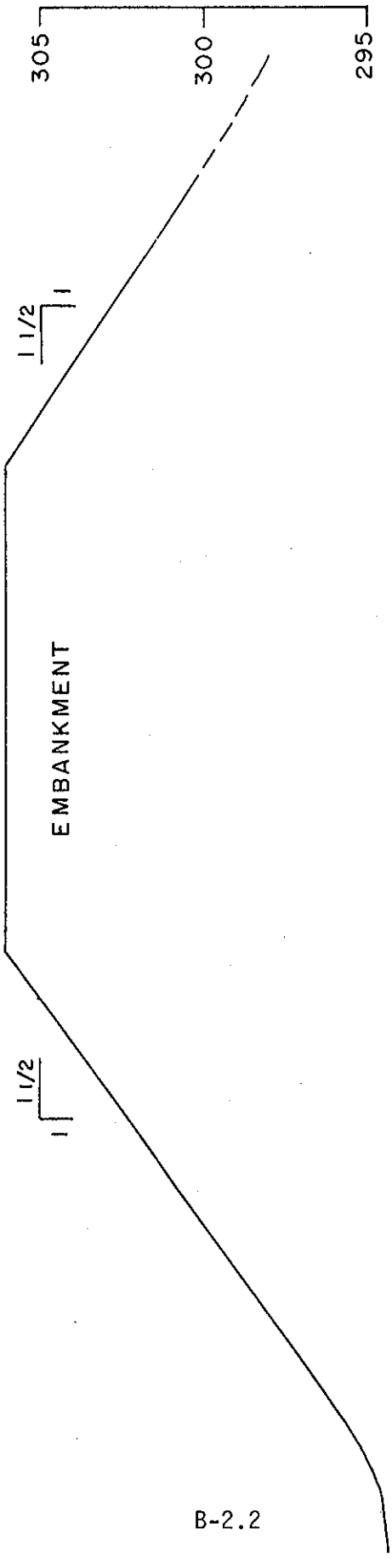
NATIONAL PROGRAM OF INSPECTION OF NON-FED DAMS

RIVER STREET DAM
PLAN & PROFILE

MOUSAM RIVER MAINE

SCALE

DATE OCTOBER 1978



SECTION A

B-2.2

EDWARD C. JORDAN CO., INC.
PORTLAND, MAINE

U.S. ARMY ENGINEER DIV. NEW ENGLAND
CORPS OF ENGINEERS
WALTHAM, MASS.

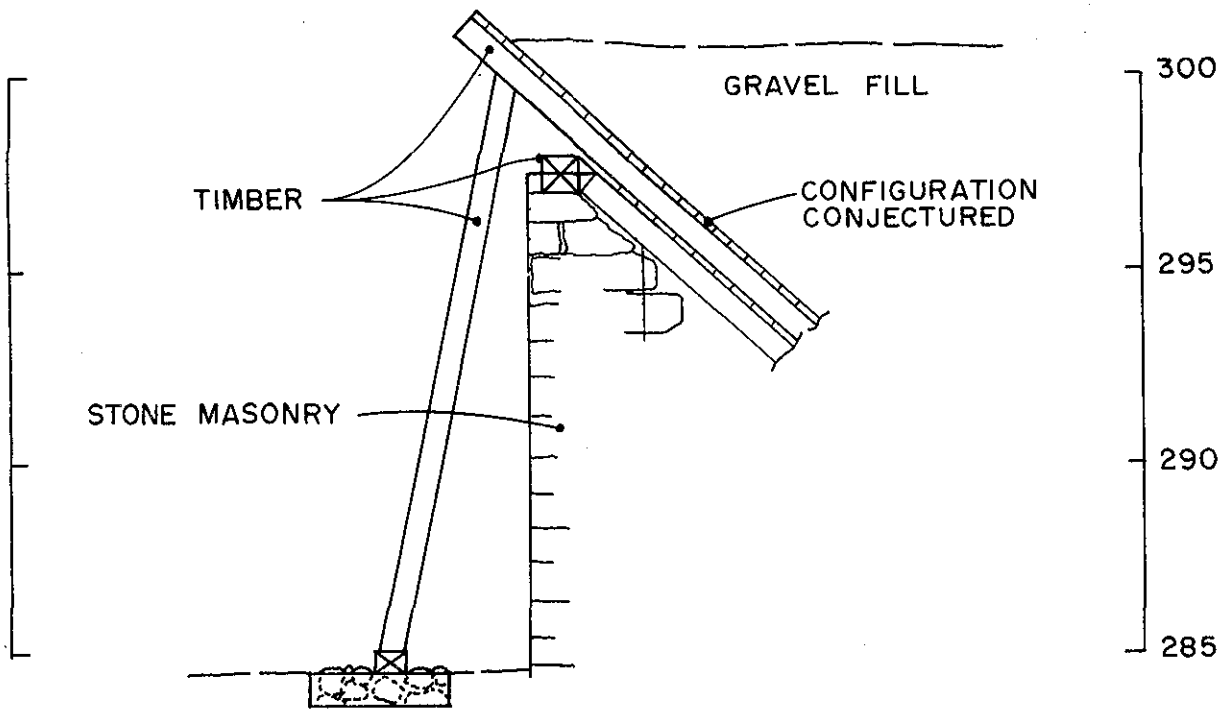
NATIONAL PROGRAM OF INSPECTION OF NON-FED. DAMS

RIVER STREET DAM
X-SECTION

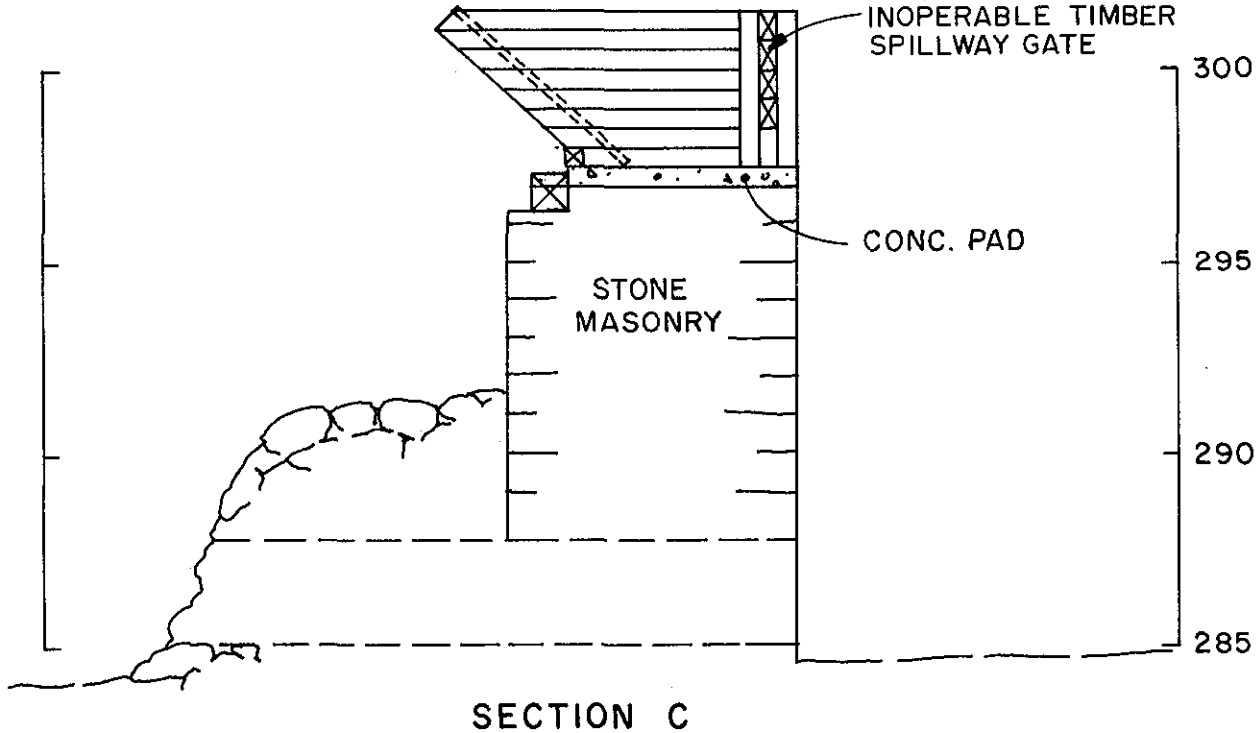
MOUSAM RIVER MAINE

SCALE

DATE OCTOBER 1978



SECTION B



SECTION C

EDWARD C. JORDAN CO., INC PORTLAND, MAINE

U.S. ARMY ENGINEER DIV. NEW ENGLAND CORPS OF ENGINEERS WALTHAM, MASS.

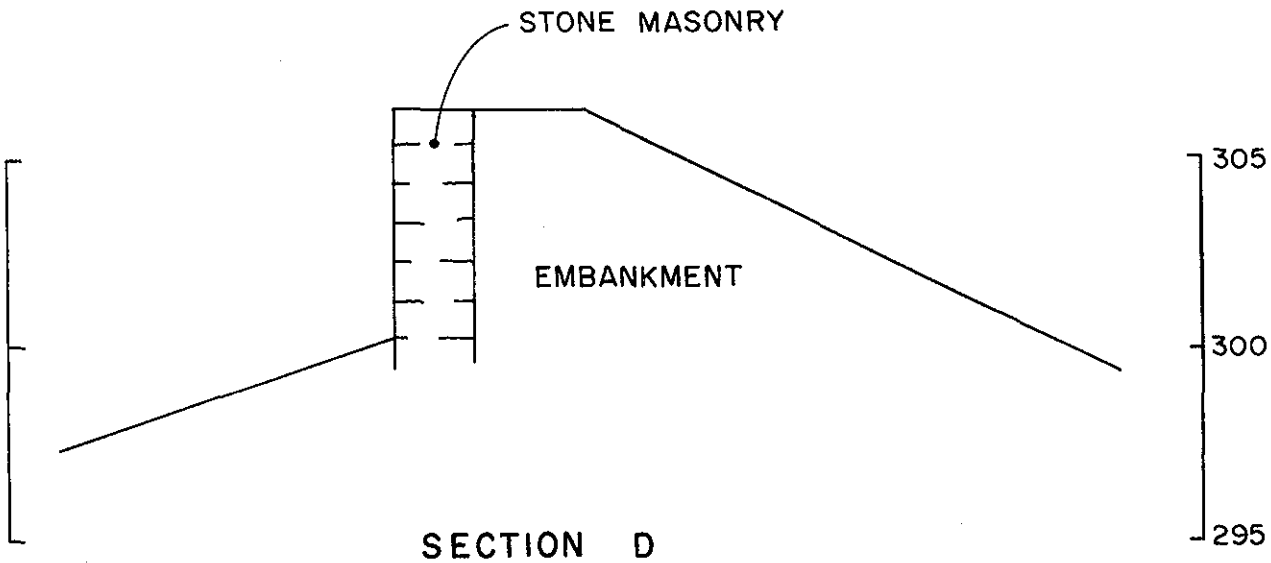
NATIONAL PROGRAM OF INSPECTION OF NON-FED. DAMS

RIVER STREET DAM
X-SECTIONS

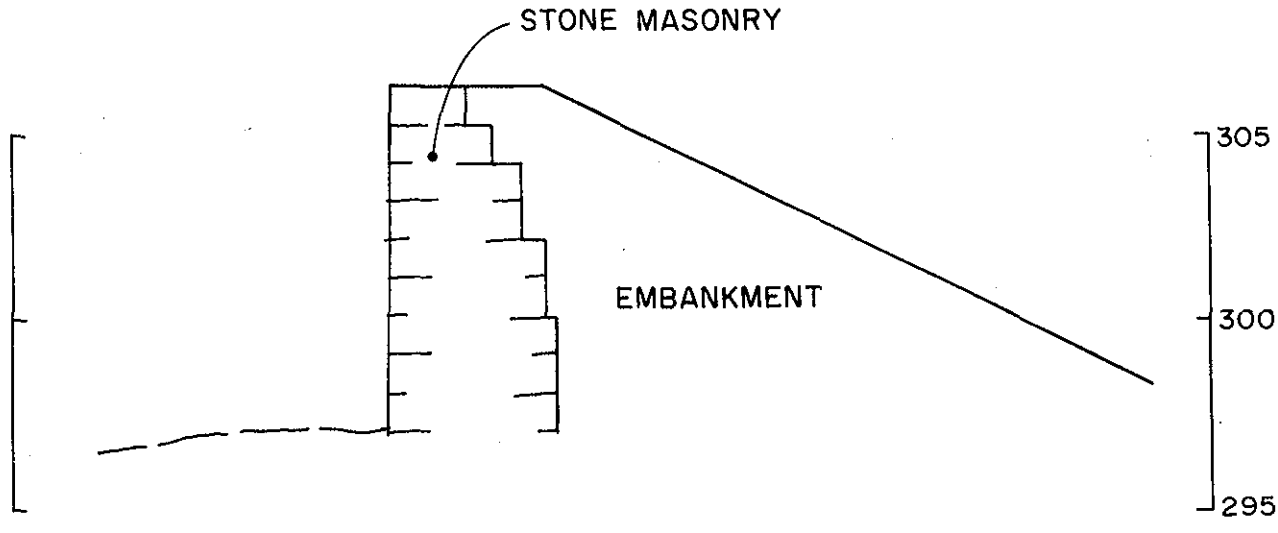
MOUSAM RIVER MAINE

SCALE

DATE OCTOBER 1978



SECTION D



SECTION E

B-2.4

EDWARD C. JORDAN CO., INC
PORTLAND, MAINE

U.S. ARMY ENGINEER DIVISION, NEW ENGLAND
CORPS OF ENGINEERS
WALTHAM, MASS.

NATIONAL PROGRAM OF INSPECTION OF NON-FED. DAMS

RIVER STREET DAM
X-SECTIONS

MOUSAM RIVER MAINE

SCALE

DATE OCTOBER 1978

APPENDIX C

PHOTOGRAPHS

The following are photographs referenced in this report.
See Sheet B-2.1 for photograph locations and orientations.

1

TOP OF DAM WESTERLY VIEW

2

BASE OF DAM EASTERLY VIEW

3

DOWNSTREAM CHANNEL, BELOW DAM, SOUTHERLY VIEW

OLD GATE, EAST END OF DAM

5

UPSTREAM VIEW, NORTHERLY DIRECTION

APPENDIX D

HYDROLOGIC AND HYDRAULIC COMPUTATIONS

Hydrologic and hydraulic computations pertinent to this investigation are attached to this section.

EDWARD C. JORDAN CO., INC.

PROJECT	COMP BY	JOB NO.
River Street Dam Hydraulic Analysis	JNF	20583.10
	CHK BY	DATE
	ETR	10/10/88

General Information

Built - 1892
Stopped power generation - 1921
loose rock, earth backfill with wood header.
Height - 16'0"
length - 170"
Spillway Crest elevation 301.7'

Overflow type dam
Spillway width ~150'
capacity - 240 acre-feet
Drainage area - 39.32 mi.²

1 yr. flood - 700 cfs
10 yr. flood - 1450 cfs
20 yr. flood - 1900 cfs
50 yr. flood - 2800 cfs
100 yr flood - 3500 cfs
Data from USGS Water Supply Paper #1671

Surface area: @ 301.7' = 58.55 acres
@ 3200' = 86.90 acres

Hydraulics $Q = CLH^{3/2}$

* Table 5-3 pp. 5-114 Brater & King
• Equation 5-33 Brater & King

Elevation above MSL feet	Survey Datum	Weir #1 L=25' W=15+ Cr=306.2 C	Q	Weir #2 L=152' w=15+ Cr=301.7 C*	Q	Weir #3 L=15' P=2' w=- Cr=301.7 C•	Q	Weir #4 L=39' W=15+ Cr=306.4 C	Q	Weir #5 L=210' w=15' Cr=306.7 C	Q
301.7	100.0	-	-	-	-	-	-	-	-	-	-
302.2	.5	-	-	3.53	190	3.33	18	-	-	-	-
.7	101.0	-	-	3.54	538	3.44	52	-	-	-	-
303.2	.5	-	-	3.55	991	3.55	98	-	-	-	-
.7	102.0	-	-	3.50	1505	3.66	155	-	-	-	-
304.2	.5	-	-	3.35	2013	3.77	224	-	-	-	-
.7	103.0	-	-	3.27	2583	3.88	302	-	-	-	-
305.2	.5	-	-	3.25	3235	3.99	392	-	-	-	-
.7	104.0	-	-	3.25	3952	4.10	492	-	-	-	-
306.2	.5	-	-	(	4716	4.21	603		-	-	-
.7	105.0	2.70	24		5523	4.32	725	2.69	27	-	-
307.2	.5	2.63	26		6372	4.43	857	2.64	103	2.70	201
.7	106.0	(	121		7260	4.54	1001	2.64	189	2.63	552
308.2	.5		186		8187	4.65	1156	2.63	290	(	1015
.7	107.0		260		9149	4.76	1322	(	405		1562
309.2	.5		342		10147	4.87	1500		533		2183
.7	108.0		431		11178	4.98	1690		672		2870
310.2	.5		526		12242	5.09	1892		821		3616
.7	109.0		628		13338	5.20	2106		979		4418
311.2	.5	(	735		14465	5.31	2332	(	1147	(	5272
.7	110.0		848	(	15622	5.42	2571		1323		6175
312.2	.5		966		16808	5.53	2822		1508		7124

EDWARD C. JORDAN CO., INC.

PROJECT	COMP BY	JOB NO.
River Street Dam Hydraulic Analysis	JHF	20583.10
	CHK BY BTB	DATE 10/10/78

Survey Datum	Elevation above MSL	Total Discharge (cfs)
100	301.7	0
101	302.7	590
102	303.7	1660
103	304.7	2885
104	305.7	4444
105	306.7	6309
106	307.7	9123
107	308.7	12698
108	309.7	17841
109	310.7	21469
110	311.7	26539
110.5	312.2	29228

Elevation above MSL	Survey Datum	Surface Area (Acres)	Surcharge Stor. (Acre-feet)	Discharge (cfs)
301.7	100	58.55	0	0
302.7	101	60.10	60.10	590
303.7	102	61.65	121.75	1660
304.7	103	63.20	184.95	2885
305.7	104	64.75	249.70	4444
306.7	105	66.30	316.00	6309
307.7	106	67.85	383.85	9123
308.7	107	69.39	453.24	12698
309.7	108	70.94	524.18	17841
310.7	109	72.49	596.67	21469
311.7	110	74.04	670.71	26539
312.2	110.5	74.81	708.12	29228
320	118.3	86.90		

Q_{P_1} = routed flow from Mill St. + PMF for additional Drainage area = 16025 cfs.

Due to size classification; $Q_{P_1} = \frac{1}{2}$ PMF $\cong$ 8000

Water elevation to pass Q_{P_1} = 307.3'

$STOR_1$: Storage @ 307.3 = 356.71 acre-feet.

Drainage area (tributary to River St. Dam) = $39.32\ mi^2 \times 640 \frac{acres}{mi^2}$
= 25165 acres.

EDWARD C. JORDAN CO., INC.

PROJECT	COMP BY	JOB NO.
River Street Dam Hydraulic Analysis	JHF	2083 10
	CHK BY ETE	DATE 10/10/28

$STOR_1 = \frac{35671}{25165} \times \frac{12}{1} = 0.17"$

$\therefore Q_{p2} = 8000\left(1 - \frac{0.17}{9.5}\right) =$ ~~7857~~ cfs 7857

Water elevation to pass Q_{p2} = ~~307.26~~ 307.25'

Storage @ 307.25' = 354.0 acre-feet 353.32 acre-ft

$STOR_2 = \frac{354.0}{25165} \times \frac{12}{1} = 0.17"$

Average = 0.17" ∴ end of iteration

7857 7860

$Q_{p3} =$ ~~7928 ≈ 7930~~ cfs 7860

∴ Routed flow = ~~7930~~ cfs

Elevation = ~~307.28'~~ ≈ 307.3'

5.6' over spillway
1.1' over top of Dam

Downstream Failure Hydrographs

$Q_{p1} = \frac{8}{27} W_b \sqrt{g}\, Y_o^{3/2}$

$W_b = 0.4(152) = 61'$

$Y_o = 17'$

∴ $Q_{p1} = 7190$ cfs.

Storage @ spillway crest = 240 acre-feet (State of Me. Dam registration form)

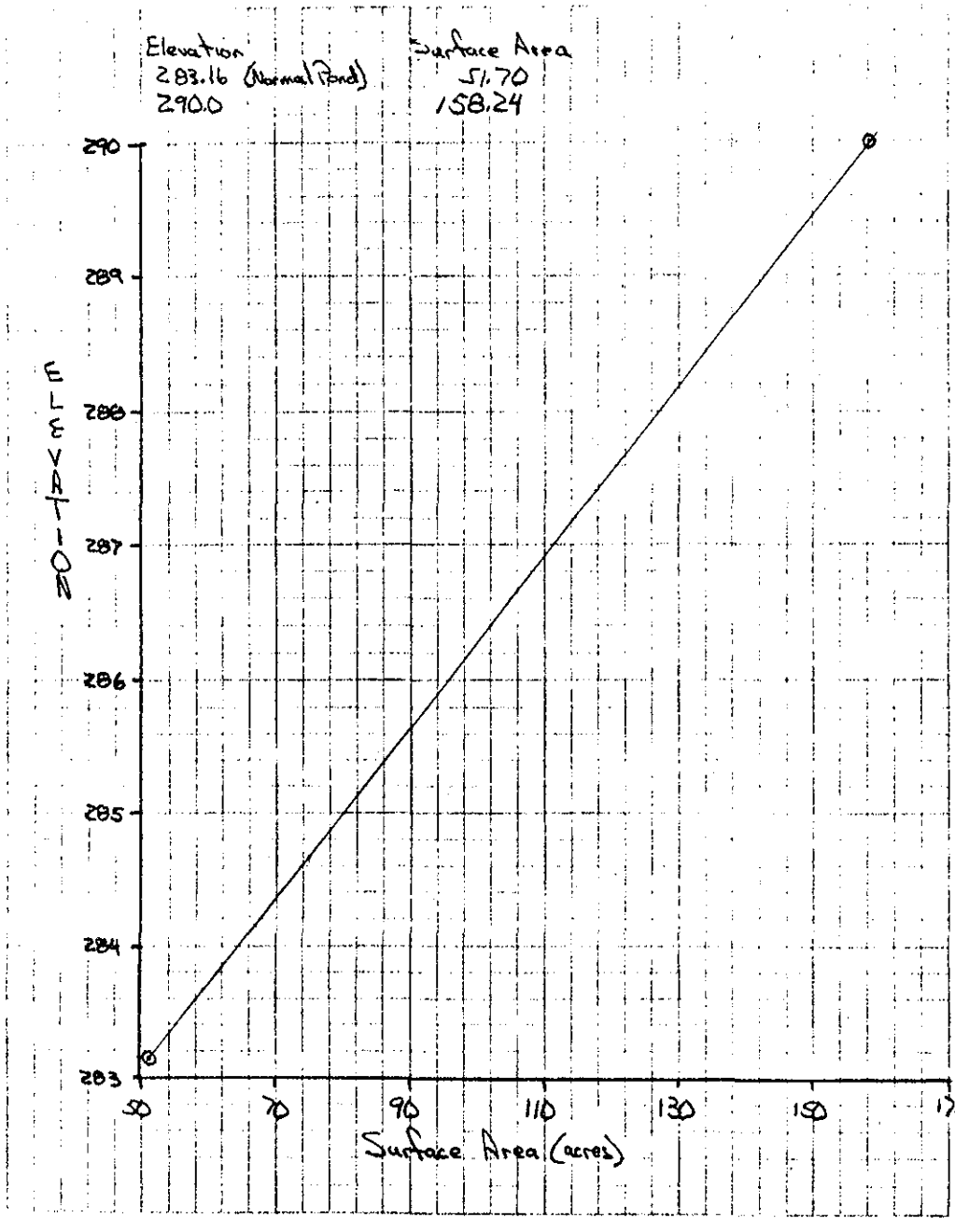
Surcharge storage @ Full spillway = 282.85

∴ STORAGE AT FULL SPILLWAY = 522.85 ≈ 523 acre-feet.

$T_1 = \frac{(12.1)(523)}{(.5)(7190)} = 1.76$ hrs.

EDWARD C. JORDAN CO., INC.

PROJECT	COMP BY	JOB NO.
Dam Failure - River St. Cross-Section #1; Dam @ No. 1 Pond	JHF	2[illegible]8310
	CHK BY EJB	DATE 10/11/78



EDWARD C. JORDAN CO., INC.

PROJECT	COMP BY	JOB NO.
DAM FAILURE - RIVER ST. CROSS-SECTION #1; DAM @ NO. 1 POND	IHT	20332.10
	CHK BY RTB	DATE 10/11/78

Elevation above MSL	FLOW L = 230' Cvalues → Fig. 5-20 Bracter & King C	Q	Surface Area (Acres)	Storage (acre-feet)
283.16	—	—	51.7	324
.66	3.18	259	59.0	383
284.16	3.30	759	67.0	450
.66	3.37	1424	75.0	525
285.16	3.42	2225	82.0	607
.66	3.46	3146	90.0	697
286.16	3.49	4171	98.0	795
.66	3.52	5301	106.0	901
287.16	3.54	6514	114.0	1015
.66	3.54	7772	121.0	1136
288.16	3.54	9103	129.0	1265

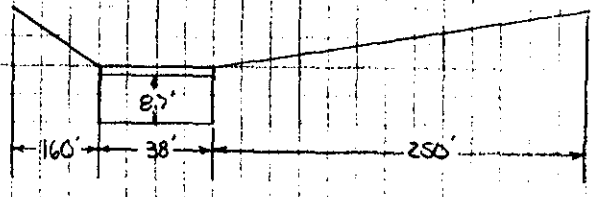
Q_{P_1} = 7190 cfs

Stage = 287.43'

V_1 = 1048

$V_1 \gg \frac{1}{2}S$ ∴ Use smaller reach

Cross-Section @ Bridge #2 River Street



Full Bridge Section → orifice equation

$Q = CA\sqrt{2gh}$ $\quad C = 0.7$, $h = 5.25'$

$Q = (0.7)(38)(8.2)\sqrt{(2)(32.2)(5.25)}$

$= 4173$ cfs

EDWARD C. JORDAN CO., INC.

PROJECT	COMP BY	JOB NO.
Cross-Section #2 - Bridge #2 @ River St.	CNI	20583.10
	CHK BY	DATE
	BTB	10/11/28

@ elevation 293' $Q = \left(\frac{1.49}{0.07}\right)\left(24+15+47.5\right)\left(\frac{\text{A}}{38+38+24}\right)^{2/3}(.0063)^{1/2}$

$Q = 133\text{ cfs}$ $\quad Q_T = 4306\text{ cfs.}$

@ elevation 295' $Q = \left(\frac{1.49}{0.07}\right)\left(160+102+123.5\right)\left(\frac{\text{A}}{99+63+38}\right)^{2/3}(.0063)^{1/2}$

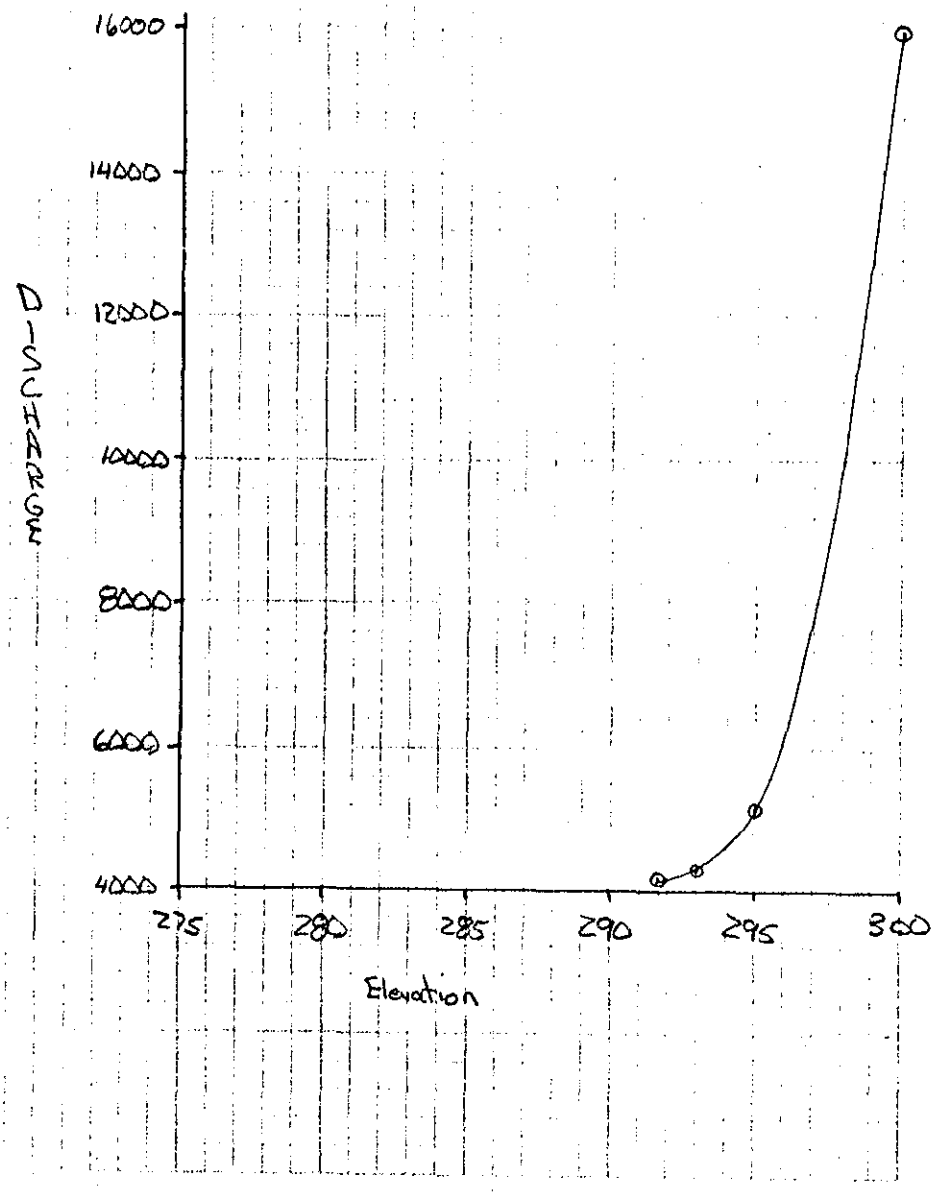
$Q = 1009$ $\quad Q_T = 5182\text{ cfs.}$

@ elevation 300' $Q = \left(\frac{1.49}{.07}\right)\left(1031+660+313.5\right)\left(\frac{\text{A}}{250+160+38}\right)^{2/3}(.0063)^{1/2}$

$Q = 11322\text{ cfs}$ $\quad Q_T = 15895\text{ cfs.}$

EDWARD C. JORDAN CO., INC.

PROJECT	COMP BY	JOB NO.
Cross-Section 2 - Bridge @ River St.	CNT	P-2510
	CHK BY	DATE
	BTB	10/11/89



EDWARD C. JORDAN CO., INC.

PROJECT	COMP BY	JOB NO.
Cross-Section #2	JAT	20-2316
	CHK BY	DATE
	BTB	10/11/28

$Q_{p_1} = 7190$ cfs.

Stage = 296.6'

$V_1 = \frac{(\frac{18.6+1}{2})(3500)(85)}{43560} = 66.9$ acre-ft.

$Q_{p_2} = 7190\left(1 - \frac{66.9}{523}\right) = 6270$ cfs.

Stage = 296.1'

$V_2 = \left(\frac{18.1+1}{2}\right)(3500)(85)/43560 = 65.2$ acre-ft.

$V_{avg.} = 66.1$ acre-ft.

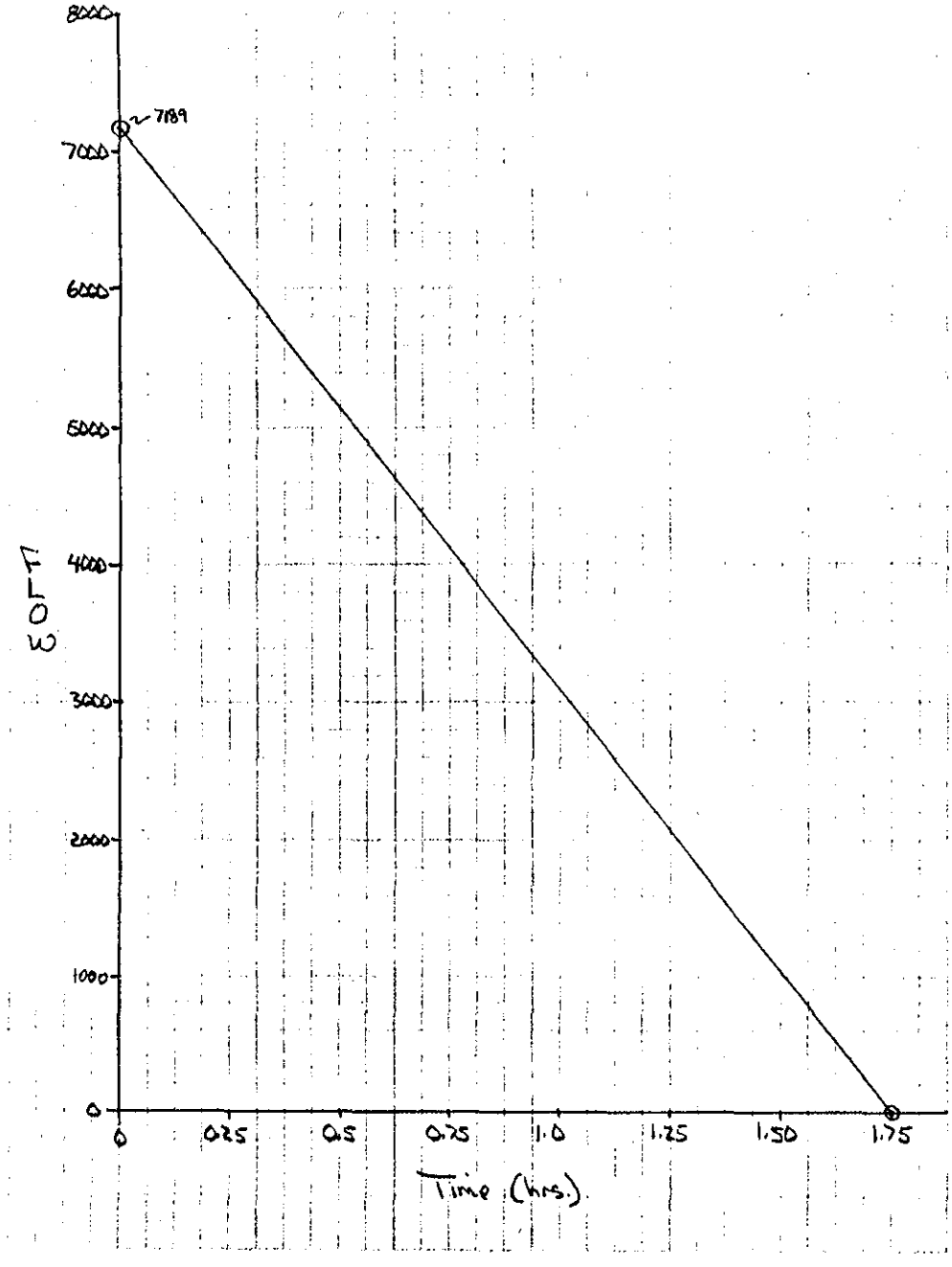
$\therefore Q_{p_2} = 7190\left(1 - \frac{66.1}{523}\right) = 6280$ cfs.

This process will be hard due to storage in pond D/s of dam and small storage above dam.

∴ Utilize HEC 1 Routing procedure.

EDWARD C. JORDAN CO., INC.

PROJECT	COMP BY	JOB NO.
HEC 1 Input Hydrograph	JNF	208310
	CHK BY	DATE
	[illegible]	10/11/88



********** ********** ********** **********

HYDROGRAPH ROUTING

ROUTING OF WAVE GENERATED BY RIVER ST. DAM BRE

ISTAQ	ICOMP	IECON	ITAPE	JPLT	JPRT	INAME
100	1	0	0	0	0	1

ROUTING DATA

QLOSS	CLOSS	AVG	IRES	ISAME
0.0	0.000	0.00	1	0

NSTPS	NSTDL	LAG	AMSKK	X	TSK	STORA
0	0	0	0.000	0.000	0.000	324.

376.	436.	504.	579.	663.	755.	855.	962.
259.	759.	1424.	2225.	3146.	4171.	5301.	6514.

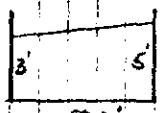
TIME	EOP STOR	AVG IN	EOP OUT
1	462.	7189.	1014.
2	568.	6670.	2104.
3	633.	5635.	2819.
4	666.	4610.	3184.
5	674.	3590.	3268.
6	661.	2565.	3123.
7	631.	1530.	2799.
8	589.	505.	2332.
SUM			20644.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	3268.	2581.	2581.	2581.	20644.
INCHES		.21	.21	.21	.21
AC-FT		427.	427.	427.	427.

EDWARD C. JORDAN CO., INC.

PROJECT	COMP BY	JOB NO.
River Street Dam Damage @ Catwalk by factory	JHF	20,933.10
	CHK BY BTB	DATE 10/12/78

$n = 0.02$ $S = 20/600 = 0.033$



- 0.0

@ elevation 1'; $Q = \left(\frac{1.49}{0.02}\right)(50)\left(\frac{50}{52}\right)^{2/3}(0.033)^{1/2}$

$Q = 659$ cfs.

@ elevation 2'; $Q = \left(\frac{1.49}{0.02}\right)(100)\left(\frac{100}{54}\right)^{2/3}(0.033)^{1/2}$

$Q = 2045$ cfs.

@ elevation 3'; $Q = \left(\frac{1.49}{0.02}\right)(150)\left(\frac{150}{56}\right)^{2/3}(0.033)^{1/2}$

$Q = 3428$ cfs.

@ elevation 5'; $Q = \left(\frac{1.49}{0.02}\right)(250-50)\left(\frac{200}{108}\right)(0.033)^{1/2}$

$Q = 4083$ cfs.

@ elevation 7'; $Q = CA\sqrt{2gh}$ $C = 0.7$

$= (0.7)(250)\sqrt{64.4(8)}$

$= 2432$ cfs.

@ elevation 10'; $Q = (0.7)(250)\sqrt{64.4(6)}$

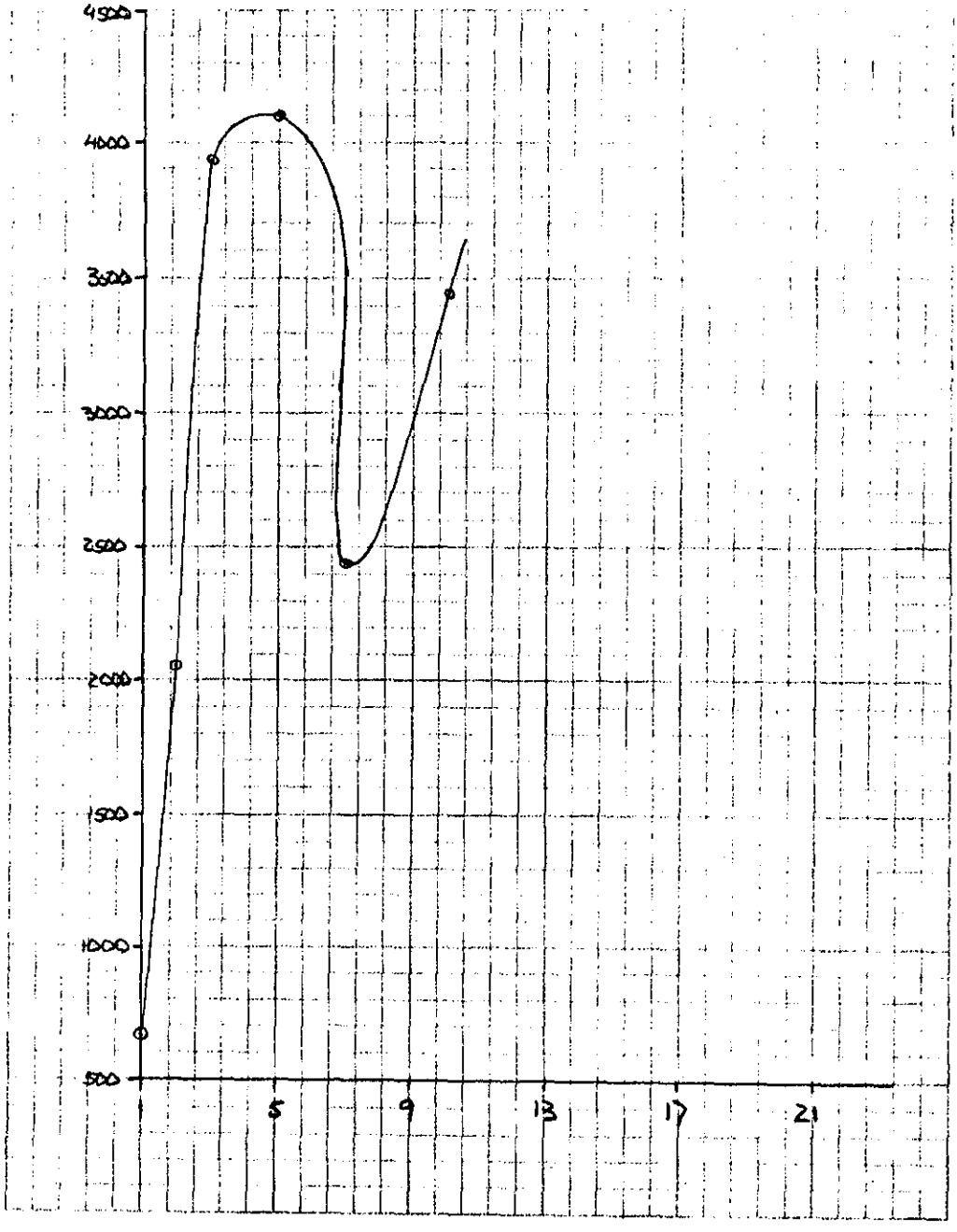
$= 3440$ cfs.

@ elevation 15'; $Q = (0.7)(250)\sqrt{64.4(11)}$

$= 4658$ cfs.

EDWARD C. JORDAN CO., INC.

PROJECT	COMP BY	JOB NO.
Cross-Section of Factory Catwalk	JHF	2058210
	CHK BY	DATE
	BTB	10/12/28



EDWARD C. JORDAN CO., INC.

PROJECT	COMP BY	JOB NO.
Cross-Section @ Factory Catwalk	JHF	2058310
	CHK BY	DATE
	DTB	10/12/78

Q_{P_3} (from HEC 1) = 3270 cfs.

∴ @ maximum - using this flow unrouted from dam - the water elevation below the catwalk ≅ 2.5' ∴ no danger unless there is backwater from downstream structures

APPENDIX E

INFORMATION AS CONTAINED IN

THE NATIONAL INVENTORY OF DAMS

INVENTORY OF DAMS IN THE UNITED STATES

(1) STATE	(2) IDENTITY NUMBER	(3) DIVISION	(4) STATE	(5) COUNTY	(6) CONGR DIST.	(7) STATE	(8) COUNTY	(9) CONGR DIST.	NAME	(10) LATITUDE (NORTH)	(11) LONGITUDE (WEST)	(12) REPORT DATE DAY | MO | YR
ME	184	NED	ME	031	01				RIVER STREET DAM	4327.6	7046.8	130CT78

(13) POPULAR NAME	(14) NAME OF IMPOUNDMENT
	STUMP POND

(15) REGION	(16) BASIN	(17) RIVER OR STREAM	(18) NEAREST DOWNSTREAM CITY–TOWN–VILLAGE	(19) DIST FROM DAM (MI.)	(20) POPULATION
01	04	MOUSAM RIVER	SANFORD	1	16000

(21) TYPE OF DAM	(22) YEAR COMPLETED	(23) PURPOSES	(24) STRUCTURAL HEIGHT (FT.)	(25) HYDRAULIC HEIGHT (FT.)	(26) IMPOUNDING CAPACITIES MAXIMUM (ACRE–FT.)	(27) IMPOUNDING CAPACITIES NORMAL (ACRE–FT.)	DIST	OWN	FED R	PRV/FED	SCS A	VER/DATE
REGRIPG	1870	R	17	13	516	240	NED	N	N	N	N	160CT78

(28) REMARKS

(29) O/S HAS	(30) SPILLWAY CREST LENGTH	(31) SPILLWAY TYPE	(32) SPILLWAY WIDTH (FT.)	(33) MAXIMUM DISCHARGE (FT.)	(34) VOLUME OF DAM (CY)	(35) POWER CAPACITY INSTALLED (MW)	(36) POWER CAPACITY PROPOSED (MW)	(37) NAVIGATION LOCKS NO.	(38) LENGTH (FT.)	(39) WIDTH (FT.)	(40) LENGTH (FT.)	(41) WIDTH (FT.)	(42) LENGTH (FT.)	(43) WIDTH (FT.)	(44) LENGTH (FT.)	(45) WIDTH (FT.)
2	440	U	150	5380	4800											

(46) OWNER	(47) ENGINEERING BY	(48) CONSTRUCTION BY
TOWN OF SANFORD		

(49) REGULATORY AGENCY			
DESIGN	CONSTRUCTION	OPERATION	MAINTENANCE
NONE	NONE	NONE	NONE

(50) INSPECTION BY	(51) INSPECTION DATE DAY | MO | YR	(52) AUTHORITY FOR INSPECTION
EDWARD C. JORDAN CO. INC	07SEP78	PL 92-367

(53) REMARKS